OMNIX is alive and well and available from CA

Computer Weekly
Thursday, February 18, 1982

… cuts cost of processing

by Philip Hunter

WHILE the market waits for expansion at both ends of the VAX range of minicomputers, DEC has cut the cost of processing power by introducing a twin coupled version of the VAX 11/780.

Called the VAX 11/782, DEC claims it offers 80 per cent more performance for just 30 per cent more money. It is aimed at users which have outgrown the existing VAX range.

There is also a failsafe element in that if one processor fails, a reduced service can still be run from the other. But it does not offer true resilience, since the disc drive system, which is the commonest cause of hardware failure, is not duplicated.

Major VAX users seem unexcited by the new system. "It will have little impact on us and our users," says Mark Woolsson, technical consultant with Systime.

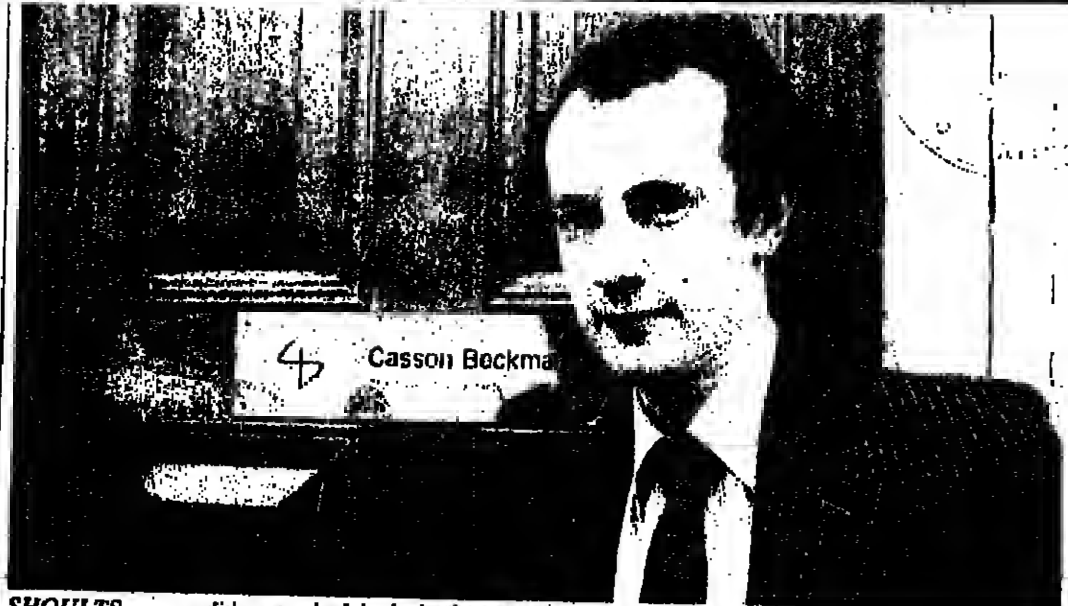
Woolsson sees the VAX 11/782 as a marketing move to enable DEC to delay introduction of genuinely new VAX machines.

"DEC eventually wants VAX machines to cover the broadest possible spectrum and this is creating marketing problems," he explains.

At the bottom end VAX machines are encroaching on the PDP range, which DEC is not yet ready to drop. It has yet to recoup substantial investments in software. At the top end, a VAX significantly bigger and faster than the VAX 780 would compete with the larger DEC 10.

Woolsson feels that DEC will wait until both it and users are ready for an expansion of the VAX range on both fronts. In the meantime users are being offered the VAX 782 as a stopgap.

The VAX 11/782 costs £275,000 and an upgrade kit to convert a 780 into a 782 is available for £125,000.



SHOULTS . . . *auditing standard is absolutely necessary.*

Standard may outlaw financial packages

by Boris Sedacca

SOFTWARE vendors supplying financial applications without adequate audit controls could soon find themselves out on a limb.

A draft standard published by the Auditing Practices Committee will outlaw many of the financial packages sold for small computers.

APC represents the accountancy bodies entrusted to carry out independent audits on the accounts of companies and organisations, and includes the Chartered Accountants' Institutes in England and Wales, in Scotland and in Ireland, and the Association of Certified Accountants.

Early this month, APC published a discussion paper called an Exposure Draft, which aims to provide a standardised approach for computer auditing.

Referring to small computers the document states: "There may be greater emphasis on substantive testing and analytical review which may be facilitated by certain computer assisted audit techniques; this arises due to weak internal controls, because small computers may either be used in small enterprises or may be dispersed throughout large enterprises.

"Many audit software package programs will not operate on small computers, and the smaller volumes processed by small computers may render manual methods more cost effective."

The upshot of this is that smaller audit firms which are being increasingly exposed to computerisation by their clients, will now be faced with an auditing guideline which they may find difficult to implement.

But according to Ken Shoults, computer services manager at Casson Beckman Associates, such a standard is absolutely necessary. CBA is the consulting arm of Casson Beckman, a medium-sized accountancy firm.

"The Mickey Mouse packages on micros and minicomputers will be forced out of business. Packages will have to provide proper audit trials and controls," Shoults said.

He contends that APC is indirectly setting standards for vendors of software packages as they will have to comply with the standards.

"Many small companies buy packages without consulting their auditors first, and up till now, auditors have not had to know anything about packages. What it means is that companies which have not yet computerised will now have to computerise the right way," he said.

Wang users get DBMS elsewhere

by Maggie McLening

QUEUES of Wang users, left without a database management system for the company's virtual storage machines, are being offered products from independent software houses.

Wang recently acknowledged the shortcomings of its software by turning to companies like The Office Manager and Cincom for help. Cincom is to supply Total database systems, while TOM has announced Speed TM II for file management and application design.

Many users were left high and dry when Wang withdrew its own data management system, ADMS, in September last year very shortly after the launch of its virtual storage VS range.

Plans to replace it with a further in-house database system, which as late as last month Frederick Wang, senior vice-president, insisted was still under development, seem to have been quietly shelved.

As a result, there is a queue of 22 users waiting for the release of Speed TM II, says TOM. It offers file management facilities as well as application design and installation control, according to Naomi Langford-Wood, joint managing director of PME, a software supplier for Wang systems which sells TOM products in the UK.

Speed II is an enhanced version of the Speed TM utility created by TOM for the Wang 2200 series of small business computers, and is installed at over 2,500 sites worldwide.

Wang's equivalent is called Ideas, and is similar to Speed in that both aim to speed up implementation by getting a business function working without standard programming. But there are no plans to adapt Ideas for VS hardware.

"VS is a larger, more sophisticated environment, and anyway there are a number of VS utilities which allow you to do the same things, so there is not the same need," explained Steve Triggs, Wang (UK)'s 2200 marketing manager.

Speed II is compatible with all Wang-supplied programs and utilities, and can be completely integrated with external code in any Wang-supported language.

The Application Design subsystem of Speed II allows development of a data dictionary containing all attributes of files and fields as well as user and technical documentation.

"It's very user-friendly, which is good because you don't have to have quite so many technical people around," commented Langford Wood, who expects to be offering Speed II to users from April 1.

● Wang (UK) has also announced enhancements to the entry-level systems of its Office Information Systems series of word processing workstations.

The OIS 105-1, offering increased storage, the new DW-20 daisywheel printer and a 32K workstation will be available in March, and two further models have been announced for release in July.

Cray sales leap $40m

by Kevin Cahill

WITH a total of 13 machines installed in 1981, Cray Research Inc improved sales revenues by over $40 million over the previous year.

Turnover for 1981 was $101.6 million compared with $60.7 million in 1980. Profits similarly improved to $[illegible] million from the depressed level of 1980 when Cray recorded profits of $10.9 million. The company's fourth quarter to December produced sales of $39.9 million and profits of $8 million.

This is more than double the performance in the same period of 1980, when sales were $16.6 million and profits $2.4 million.

The sharp increases come at a time when a whole range of mainframe manufacturers, including IBM, are reporting depressed sales and profits. They confirm Cray's view that the market for very large custom-built and specialised systems is not as vulnerable to recession as the provision of general-purpose computers.

What does affect Cray is whether systems are leased or sold, and whether revenue is obtained straightaway from sales, or deferred on leases. In 1980 Cray sold a total of nine systems — five were outright sales and four were leased.

In 1981, Cray sold seven machines and leased six, with a consequent large increase in sales revenue.

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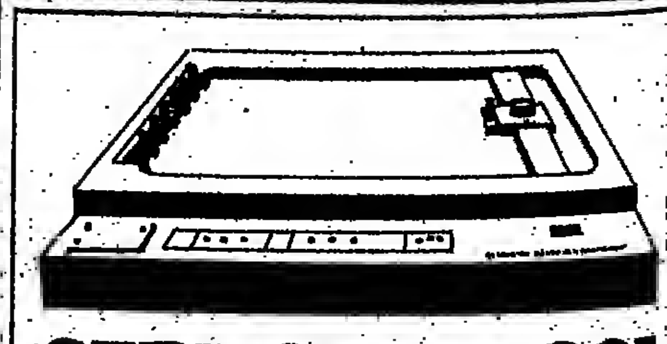

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Thursday, February 25, 1982 Number 797 30p

'82. A great year for PTZ.
FERRANTI Computer Systems

NEWS BRIEF

Mercury goes ahead

THE Mercury alternative telecommunications network is going ahead. Industry Secretary Patrick Jenkin announced in the Commons this week that a licence has been issued to the consortium of Cable & Wireless, Barclays Bank and BP.

Agreement has been reached that Mercury will interconnect with the British Telecom UK public network and will also have access to international circuits, although BT will remain the sole international carrier.

Buzby bond delay

AN announcement on the "Buzby bond" that is expected to allow British Telecom to raise £150 million on the open market is still some way off, according to the Department of Industry. This is despite recent optimistic reports.

Civil Service deal

LONG-STANDING negotiations about the introduction of new technology in the Civil Service at last look like reaching agreement. Union negotiators have agreed with Cabinet representatives about a two-year agreement which must be ratified by the union executive. See page 3 and leader.

NIXON: . . . *1401 memories.*

IBM memories

NOSTALGIA mixed with less than reverent mentions of the IBM 1401 and other ancient beasts were the tenor of the evening when IBM managing director Eddie Nixon attended the 25th anniversary dinner of the IBM Users Association last week. Nixon recalled that when Len Griffiths was the first chairman of the CUA, he was writing his first sales briefs for the 1401 — which he then produced to the delight of those present.

Star athletes

SOME of the big names from previous Computasters events have already entered this year's competition. The change in the rules allowing firms to put up more than one team seems to have met with approval, with multiple entries from BL Systems, Case, and Kalamazoo. Details and application form on page 4.

IBM users gang up over 3081 'shortfall'

by Kevan Pearson

USERS of top of the range computers from IBM and its plug compatible rivals are complaining of poor performance from these large systems.

At least five buyers of IBM's 3081 model D, the first of its H-series, are up in arms over shortfalls in performance. The five are Grundig, Volkswagen, Messerschmidt, Hoechst and BMW. They have formed a 3081 club to pressure IBM into increasing their system throughput.

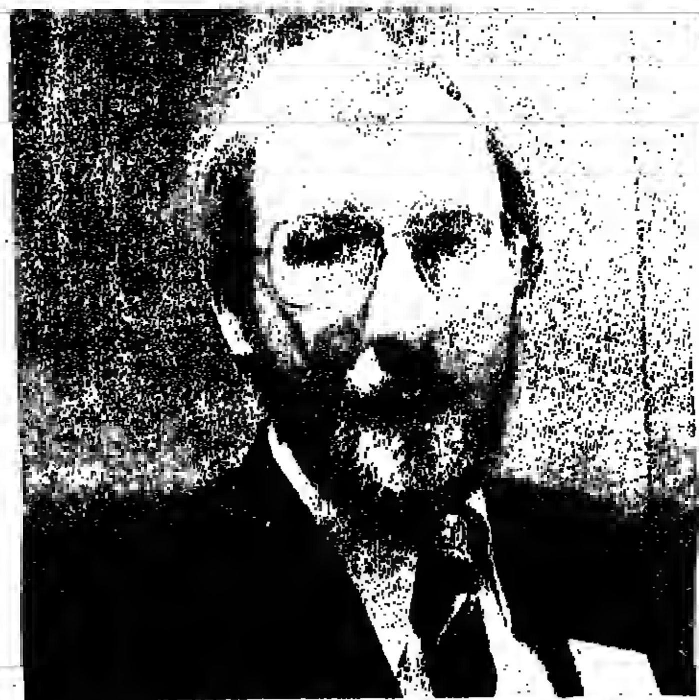
The problems arise when there is a heavy interactive load on the machine, particularly with a heavy use of Time Sharing Option, TSO, the database system, IMS, and the teleprocessing monitor CICS.

They have been so severe that in some cases users claim the 3081 is only as powerful as the 3033 model AP, IBM's previous top-end machine.

The main complaints are that the machine does not have sufficient input/output capabilities for the speed of the processor, and that the design of the 3081, as a dyadic or close-coupled dual processor, means that only one of the processors is linked to the input/output system for existing installations.

This effectively means that for an application with a heavy input-output component the machine is working well below its potential.

IBM Germany admits that the 3081D may not come up to expectations in individual cases. Unless the whole computer installation is designed to make use of the processor's performance, with 24 channels and high speed peripherals, then the system's performance will not come up to scratch, it adds. The company has yet to make appropriate peripherals like the 3380 disc drive available.


BURCH . . . *Large systems have very variable performance ranges.*

Standard Life Assurance of Edinburgh, one of only four 3081D users in the UK, reports similar experiences to the German companies. "The processor is faster than we had been led to believe," says Douglas Manson, assistant head of systems at Standard Life, "but the system doesn't res-

● Turn to page 5

UK fifth generation cash in doubt

by Boris Sedacea

THE government is to pull together the UK computer industry to a conference in the summer to attempt to agree Britain's response to Japan's fifth generation computer project.

The conference will follow an earlier one at the end of January when the Department of Industry invited the Science and Engineering Research Council to consider plans for a collaborative UK effort for fifth generation computers.

But a spokesman for the DoI this week described as "incorrect" reports that the government had plans to spend £250 million on the development of these machines.

"We held a conference at the end of January so that those people who went to Japan with Reay Atkinson (then head of the DoI's information technology division) late last year could report back to the industry with their impressions," the spokesman said.

"No decisions have been made and the figure of £250 million was put on the plan as a guesstimate, put and would not all be coming from government but from industry as well if there was a decision to go ahead," he added.

A senior industry delegate at the January conference, which was attended by about 60 people, said that it was essentially a meeting of university academics addressing industry and government to obtain research funds.

"I do not think they have thought through whether we should provide a value-added element along the lines of the ICL-Fujitsu deal or compete directly with the Japanese," he said.

"The academics are rooting for head-on competition, but the Japanese are better at working in large research teams and universities do not figure highly in the Japanese scheme of things," he added.

Few civil servants within the DoI appear to be in favour of government support on such a large scale.

● Japan fifth generation project — report page 10

INSIDE THIS WEEK'S ISSUE

Govt 18% pay rise anger unions	3	French heads roll	3	Puzzler	18
Ten companies join 256K-bit race	8	£175,000 for training call	4	Op Spot	19
US-Japan chip battle hots up	15	Viewdata team-up	5	People/Diary	20
Glaring case for VDU worker-control	19	Fifth generation boost	10	Book Reviews	21
Software Month focuses on productivity	22/25	Software File	11	Products	26
		Micro News	12	Crossword solution	52
		Company News	14/15	Sales Bit	53
		Downtime by Chad	16	Marketplace	54/55
		Letters	17		
		Programmers Page	18		

Jobs: Pages 27/53

COMMODORE PET
Quite simply, Britain's biggest selling microcomputer

Commodore's confusing claim.

Top micro firms rapped by advt standards authority

by Robert Parry

ADVERTISING of microcomputers has attracted a rash of complaints to the Advertising Standards Authority from unhappy buyers.

The Authority's summary of complaints dealt with during December shows three of the top-selling microcomputer companies — Commodore, Sinclair and Tandy — had complaints against them.

As well as the recurrent theme of equipment not being available as advertised because of production delays — in December it was the Sinclair ZX printer, the previous month the Commodore Vic-20 — there were claims that adverts were misleading about price, popularity and performance.

Tandy was in trouble because prices for the TRS-80 Model III were shown as £499 or £599, depending on which Sunday colour supplement you read. Timing of the price rise did not fit the two printing schedules equally well, Tandy said, telling the ASA that it would honour the lower price for anyone responding to that advert.

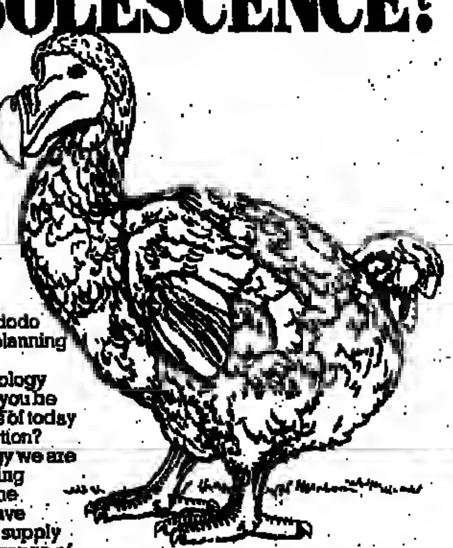
Commodore's confusing claim was that the Pet was "quite simply Britain's biggest selling microcomputer." While Commodore believes this, it was not able to substantiate the claim to the ASA's satisfaction, so the challenge that this was not the true sales position was upheld.

Sinclair suffered a flurry of complaints. As well as the non-available printer and its usual few problems with faulty goods or non-delivery by mail order, there was an objection that the Press advertisement was misleading about the ZX 81's colour capabilities.

The copy showed a TV screen with black lettering on a blue screen. The complainant had expected to be able to play colour games, but when the machine arrived found it only had a black and white display.

The ASA upheld the complaint, and asked that future advertisements be amended.

EVOLUTION OR OBSOLESCENCE?



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STORAGE TECHNOLOGY

CIS Cobol and CP/M linked in high level deal

by Philip Hunter

USERS of microcomputers can now buy high level languages and the popular CP/M operating system in one package. This follows the recent acquisition of several high level language compilers by CP/M authors Digital Research, and a deal made with Micro Focus to sell CIS Cobol.

The agreement will also open-up markets for Micro Focus and should bring its CIS Cobol, the first full implementation of Cobol on microcomputers, on to IBM's Personal Computer and Display Writer.

At the same time it will enable Digital Research to offer a complete range of commercial languages as window dressing for CP/M. Recently it took over two companies specialising in languages and compilers in order to bring Basic and Pascal under its umbrella.

Digital Research will be acting as a second source, selling the two Cobol compilers under the same standard terms as Micro Focus itself.

Brian Reynolds, chairman of Micro Focus, believes the pioneering deal will free his marketing team from the burden of selling to CP/M users and enable it to concentrate on other strategic targets like Unix.

But the deal only covers the two basic compilers and omits higher level Micro Focus tools such as Forms II and the recently announced interactive programming aids Animator and Slide Show.

"We will continue to deal with these areas ourselves," says Reynolds.

Micro Focus has two Cobol compilers for micros. The first was CIS Cobol, which brought the first Ansi-74 standard version of the commercial language on to 48K micros.

The second, announced last autumn, was Level II Cobol, for the emerging generation of 96K microcomputers.

Level II will be tested for the high level certificate later this year by GSA, the US General Services Administration. This would establish full compatibility with mainframe Ansi 74 Cobol compilers.

The deal with Micro Focus gives Digital Research incentive to expand its market. "We get the bulk of the revenue until a certain level is reached, after which Digital Research gets most," says Reynolds. "Eventually we would each take an equal cut."

Digital Research will offer full software support for the product compilers and, Reynolds claims, will be in a better position than Micro Focus to take advantage of improvements in CP/M.

REYNOLDS . . . free to concentrate on non-CP/M markets.

MENZIES, McKASKILL AND McKASKILL . . . orders worth a possible £125,000 from New Zealand.

Export 'novice' expects £125,000 software sales

by Kevin Cahill

LESS than four months after entering the export market, Northampton-based software house Pioneer Computers has clinched orders worth a possible £125,000 in New Zealand.

The orders are for the company's sophisticated DBC-oriented Command software. It will run on the network of 20 DBC PDP 11/70 minicomputers at CBL Ltd, which is New Zealand's biggest bureau.

The orders follow an initial foray to New Zealand made by the directors of Pioneer last October. Orders of £25,000 are firm now, and £100,000 will follow next year.

On that first trip Ann and Tom McKaskill, who founded Pioneer two years ago with Graham Menzies signed a consultancy contract with one company and a royalty agreement with CBL to run the manufacturing and accounting package as a service to its online customer base of over 300 companies.

The first customer went live on the package recently.

Former employee scoops Burroughs

by Maggie McLening

A FORMER Burroughs employee is preparing to scoop the market for on online development system from under the manufacturer's nose.

The employee, David Wild, left Burroughs over five years ago but has now brought out a system for series 1900 machines from his company, Hampshire-based Datalog Management Systems.

His product, Data Processing System, is an online development tool which allows transaction processing systems to be built up in a fraction of the time taken by conventional programming.

Two years ago Burroughs said it had a similar tool, but the product has still to appear.

Wild started developing DPS two and a half years ago, but could arouse no interest from Burroughs itself in the project.

"I first presented DPS in Lucerne in October 1980, where Ken Stokes, who was in charge of Burroughs software development, saw it. He said they wouldn't be interested because they were releasing something of their own in two months' time," explained Wild.

"I believe their own product was going to be generative, but so far nothing's appeared."

He has investigated the possibility of transferring the system to other equipment, but says that there could be difficulties without the sort of inter-program communication provided by MCP, the Burroughs operating system.

A key feature of DPS is the ability to alter field descriptions without re-compiling programs, and to change them immediately on the screen.

A spokesman for Burroughs commented that it expects to have a "sort of similar" product available fairly soon.

WILD . . . in first with online development tool.

Govt is pressed on privacy timetable

by our Parliamentary Correspondent

OFFICIAL confirmation that the Home Secretary will canvass views of setting up an independent registrar with a small staff, costing computer experts, to try to provide better data protection was given in a written answer in the last week.

Timothy Raison, Minister of State at the Home Office, was answering Michael Meacher (Labour, Oldham West) who wanted to know the government's policy towards the establishment of an independent registrar or "computer Ombudsman" for data protection.

Raison said government proposals for legislation would be contained in a White Paper to be published shortly.

The Home Secretary, in a further answer, said the next government proposals would be a public register but he did not intend to set up a data protection authority on the lines recommended by the Lindop Committee.

Some 40 MPs have already sought to underline the Prime Minister's condemnation of the invasion of privacy of individuals through unauthorised access to computer data held by both public and private agencies.

In an attempt to hold her to introducing legislation in the next session of Parliament to curb bad practices, they have tabled a Commons motion.

The motion is in the name of Michael Meacher, who is already trying to legislate on the matter through a Private Member's Bill.

It is being backed by MPs on both sides of the Commons.

● A Cabinet Minister for science and technology has been called to in a debate in the House of Lords.

Lord Sherfield made the plea drawing attention to a report by the Lords Select Committee on Science and Technology on the relationship between science and government.

The Prime Minister has assumed responsibility for co-ordinating scientific policy but it was argued in the debate that a separate Minister should be appointed who would be able to give more time to the subject.

During the debate, Lord Flowers expressed hope that the Minister for Information Technology would announce a meaningful national policy soon.

He said it was now clear that information technology's application would affect nearly every activity and profession.

Computer staff in the front line of last year's protracted government pay dispute.

Govt 18% pay rise plans anger unions

by Andrew Thomas

GOVERNMENT plans to pay its computer staff rises of up to 18% this year while other workers are limited to a maximum of 5½% have been criticised as divisive and badly thought-out by Civil Service unions.

At least 65,000 other civil servants, who are under 21 or at the bottom of their grades, will not be offered any rise this April, and other grades are due to get increases of between only 1% and 5½%.

But government DP staff, who were in the front line during last year's five months of selective strikes, are to get up to 11% over and above the government's 5½% maximum offer to other sectors.

The extra allowances are available, at management discretion, to provide rewards for individual skills and productivity. The staff involved are Executive Officers (EOs), which include operators and programmers, and Higher Executive Officers (HEOs), the grade including systems analysts.

In addition to the new allowances, the earnings limit on grades for HEOs has been withdrawn, enabling those at the top of the salary scale to receive more money, when previously the only route to higher pay was promotion.

The reason given by the Treasury for the seemingly preferential treatment for DP staff is the retention of skilled personnel.

"It is very difficult to replace skilled DP staff," said a spokesman, "and even in these troubled times, they are still very mobile. The extra allowances are an attempt to discourage them from moving into the private sector."

But Alastair Graham, general secretary-elect of the Civil and Public Services Association, the largest union, which represents the lower-paid officials, was not sure that this was the only reason.

"The government is anxious that this particular group should be bought off," he said. "Staff getting 17% or 18% rises could be working alongside people getting nothing. It is a very ill thought-out and divisive offer."

It is unlikely that without the DP staff, the Civil Service unions could put up an effective struggle against the pay offer. Last year it was the closure of the Inland Revenue, Department of Health and Social Security, and VAT computer centres which caused the government the most discomfort.

The unions want a 13% increase, with a minimum rise of £12.50 a week for the lower-paid.

Graham added, "Clerical officers with five or six years' service would only get a 1% to 2½% rise, while DP staff could receive ten times that amount after only three years' service."

The Council of Civil Service Unions is also unconvinced that retention of staff was the sole reason behind the offer.

"We see the extra allowances for DP staff as a two-pronged attack," said a spokesman. "While extra money should result in fewer people leaving, it could also be seen as a sweetener for the civil servants who were in the forefront of the industrial action last year."

But not all civil servants involved with computers are to get the extra allowances. Colin Walters of the Institution of Professional Civil Servants said that scientific computer personnel were not eligible for the bonuses.

Bank may switch to micros

by David Craver

THE UK's largest merchant bank has started a programme which could lead to the replacement of its Digital Equipment PDP 11-based installation with a network of Zilog microcomputer systems.

Kleinwort Benson took delivery of two 16-bit Z8000 systems at the end of last year – believed to be two of the first in the country – and has undertaken evaluation work with a view to buying more. It is expected to take some 30 systems and link them in a network which will eventually replace the PDP 11s.

Initially the Z8000s will be integrated into the existing DEC systems, which include five PDP 11/70s in place and two on order, and a PDP 11/55. They will be used for software research and development, and as printing subsystems and file devices.

Applications for the Kleinwort Benson computers, which are installed in the City and a new site in Newbury, are the entire books of the bank, a real time foreign exchange system, and an investment management system.

Ethernet-based local networks soon to be made in the UK

by Donald Kennett

LOCAL networks based on the US-designed Ethernet system will soon be made in the UK, but paradoxically, the manufacturer expects to find some of its first customers in the US market.

Northwich-based data communications manufacturer Sension Scientific, the first UK company to design and build Ethernet-based networks, this month goes into commercial production of its Ethernet-compatible transceiver and V24 serial device interfaces after running trials with an unnamed UK system builder since last October.

Its network will also be built into systems by its own sister companies Sension Systems (for the industrial market) and Turnkey Systems.

Six UK companies have so far signed orders for systems, but the interest from the US stems from the fact that Sension's version is designed for the industrial environment and has a high electrical isolation (4KV) and low capacitance between the cable and the transceiver.

Sension group managing director Roger Dyke said many of the company's UK customers used the British-designed Cambridge Ring for local networking, but he felt that Ethernet would be more widely applicable to multinational networks.

One of the potential US customers already has a US-made Ethernet installed and is having problems with it because of the environment in which it is operating. Another company is considering distributing the UK-made version in the US. The recession is making US manufacturers look outside for system components to save on their own development effort, according to Dyke.

The company is offering Ethernet trial kits containing three transceivers with coaxial cable and connectors. The transceivers cost £359 each, but fall to £188 each when 100 are ordered. V24 interfaces cost £795 for the single-port version and £985 for the four-port model.

Dyke thinks the Ethernet systems will account for a significant proportion of this year's expected £2 million turnover.

Telcom Panel set up

by Donald Kennett

SUPPLIERS and users of telecommunications equipment are to be pulled together in a new panel seeking to identify gaps in British Telecom's offerings.

Unlike previously-formed groups which have brought interested parties together to discuss their own markets, the Telcom Panel has been started by the London-based MIL Research to find others, as well as generate income for itself.

The approach sees eight unnamed telecommunications suppliers subscribing £4,800 each to the 1982 programme. Some 100 major users are to join free of charge. MIL director Michael Pecock says this is sufficient to get the ball rolling and he hopes to bring in more suppliers later.

The first event is to be a two-day workshop in the Barbican in April, which MIL will seed with the findings from a survey of 7,000 telecommunications users it is currently completing.

Participants in the programme will also be asked to give their plans for the next one-to-three years in areas including word processing and data processing.

French DP heads roll

by Kevan Pearson

THE head of St Gobain-Pont-a-Mousson, the French computer and electronics conglomerate, was one of only two chairmen not to be replaced following the nationalisation of France's high technology and banking industries last week.

Roger Fauroux remains in control of St Gobain, but there have been changes at both Thomson-Brandt and Compagnie Generale d'Electricite (CGE).

Alain Gomez, a former director of St Gobain, takes over at Thomson Group, while CGE is to be headed by Jean-Pierre Brunet, an ex-diplomat.

There has been no change at the helm of CII-Honeywell Bull, despite persistent rumours that some senior managers would be replaced. The most likely change would be the replacement of Maxime Bonnet, the current chairman of CII-HB by Gerard Theys, the former head of France's telecommunications authority (PTT).

CII-HB confirmed that negotiations were taking place for the reduction of Honeywell's 47% stake in the company, and a decision is expected within a few weeks, said a spokesman. But Honeywell's compensation is likely to prove a sticking point after CII-HB's near disastrous financial showing in 1981. The company turned a profit of £16 million in 1980 into a loss of £40 million last year.

Interface for Burroughs kit

by Donald Kennett

EUROPEAN Burroughs users are offered an increased choice of peripherals by using a universal interface now available from London-based Hamilton Rentals.

The interface, called the Apex 110, was launched in the US in 1980 by American Peripheral Exchange and now has over 1,200 users.

The device, based on an Intel microprocessor, provides serial or parallel connections to peripherals such as VDUs and printers. It enables Burroughs users to go to the open market for features not available on Burroughs products.

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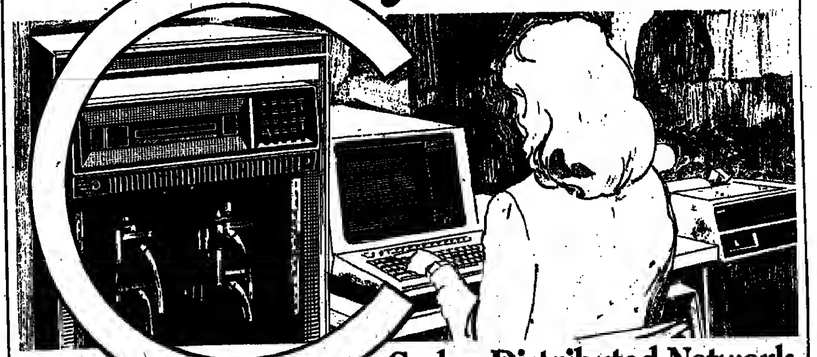

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'Speed of mini, price of micro'

by Robert Parry

MULTI-USER systems with the speed of a mini but the price per user of a micro is the promise held out by Multicomputer with its M200 systems.

Based on US hardware from Molecular Logic, M200 gives each user a separate Z80 CPU with 64K RAM and access to shared disc files and peripherals, and a remote terminal.

By putting all the process boards in one central unit, connected by a high-speed parallel internal bus, Multicomputer claims to provide "speed where it counts" – cheaper than a minicomputer and faster than a local area network linking individual microcomputers.

Up to 255 users can share hard disc storage which can be expanded to 600 Mbytes. The system runs under s CP/M-based operating system, n/STAR. It will run standsrd CP/M application programs, but is enhanced to ease multi-user programming and give better data security.

Links to mainframes are not curreotly possible, but managing director Arthur Kennedy thought that the capability would be available in three to four months.

Brentford-based Multicomputer will sell only direct to users in partnership with people proficient in particular application software. This could involve supplying hardware aod operating system software to system builders or supplying turnkey syatems to end users with application software written by experts.

Multicomputer's firat link is with a group general practice in the Deddiogtoo Health Centre, Oxford. Software aimed at primary health care has been written by one of the doctors, Peter Fell, a neighbour of Kennedy.

No customers are lioed up for such systema yet, but Multicomputer hopes for a share of the large potential marker. Benefits of the system to large group practices, which can stretch to 30 doctors and 75,000 patients according to Kennedy, include enabling the doctors to practise preventaive medicine as well as curative. It would be possible to search for particular drug combinations or sets of symptoms, impossible with manual systems.

Kennedy added that if the GP systeras went well, Multicomputer would think seriously of developing hospital medical systems.

KENNEDY . . . *Links to mainframes in 3-4 months.*

Call for £175,000 to develop DP training

by David Craver

THE voluntary computer services industry training board, Cosit, is seeking some £175,000 from the Manpower Services Commission this year to develop industry training of DP ataff. That figure ia less than one per cent of what the UK computer industry is estimated to spend on training annually.

Cosit, formed last October, hopes to provide a more flexible approach to training, and ao turn the MSC away from the typical two-year TOPS-oriented programmes. Its role will be as a kind of broker for industry-run training courses, tapping the atrengths of the major computer companies which have set up their own successful training schemes.

The MSC is expected to look favourably on the board's "supplication for continuing assistance", as Cosit training executive Gordon Ewan puts it, especially os Employment Secretary Norman Tebbit has made clear his preference for voluntary arrangements.

Tebbit has agreed tu be the keynote speaker st a Cosit seminar on March 10 which, Ewan saya, will put the message to industry executives that "unless you are prepared to train you are going to get caught."

The progress of Cosit will be under the eye of the Engineering Industry Training Board, which may find its future as the traditional centre of computer industry training brought into question.

When Tebbit axed 16 mandatory industry training boards at the end of last year the EITB was spared, but that was probably because it was too large and entrenched to get rid of.

The MSC, which has been allocated £1 billion under the government's New Training Initiative, will decide by the end of next month where training funds will go. While Cosit has put o five-yeor programme to the MSC for consideration, Ewan is of the upinion that the MSC will opt for short-term funding.

The recent oppointment of David Youog as chairman of the MSC to replace Sir Richard O'Brien encourages that view, and Ewan suggests the MSC is atorting from scratch with the new appointment.

Ewan hopes Cosit will becnme the No 1 trainer in the computer induatry, which could eventually expand its current mandate which is now solely in computer services. He says his job is to convince companies to take people on and train them from apprentice level, as well as to provide some atondordisation of training.

Apprenticeships, Ewan soys, are out of fashion, and this was one of the reasons for setting up industry training boarda in the Sixties. But some sort of formal "trainingship" is needed, he asserts.

EWAN . . . *"Unless you are prepared to train you are going to get caught."*

SALES BRIEFS

Solartron system for power station

THE Solsrtroo Industrial Systems division of Schlumberger has a £400,000 contract from the Central Electricity Generating Board for a plant supervision system at Eggborough power station in Humberside.

The system will be based on 512 Kbyte Digital Equipment PDP-11/24s running software developed on a DEC LSI-11/23 by the CEGB, using its own programming language Cutlass. Completion is due by the end of 1984.

Police links

THE Home Office has ordered a number of computer-based communications systems from Burndept Cyfss Systems of Biggleswade for use by the police. They include a Consort II headquarters network cootrol system for radio and telephone links, Mini-Consort II divisional network control systems and a vehicle location system for nearly 300 vehicles.

Healthy interest

ORDERS from health authorities for Stage One Computers' £300 transactional dstsbsse program Administrator now total £20,000. The company has also signed distribution agreements in the US with Professional Software, which markets the Wordpro word processing psckage, and with Tedelex of Johannesburg. The US market is expected to take 6,000 packages a year.

£100,000 order

BELFAST estate agent Hiss Morton and Company has installed o word processing, data processing and information retrieval system based on a Wang 2200 MVP. Supplied by Wang's Northern Ireland distributor Logicom, the system has six VDUs and, with application developmeot work, cost over £100,000.

Voice links

CENTRE-file, the bureau subsidiary of NatWest Bank, has installed a voice respoose system from Menzies Communications Syatems, taklog advsatage of MCS' scheme for bureau customers which links payments to usage. The system la being used by K-Shoes to collect dsta from 325 shoe ahops.

Consortium

THE Trowbridge-based Consortium for Purchasing and Distribution has ordered a £50,000 Rediffusion compact office system to take over stock management and order processing work from existing data input equipment. It will be linked to an IBM 3031 mainframe at Wiltshire County Council offices.

Society system

SCARBOROUGH Building Society is to install ao in-house borrowers' and investors' accounting and document control system. Based on software from Cardiff-based Target Computer Services, it runs on a Univac System 80. The aystem is written in RPG II and it will support inputs and inquiries from five workstations in two of the society's offices.

Holiday micro

BIRMINGHAM-based villa holiday operator Europlan Holidays has installed a Micro Spsce accounting and reservation system from Micro Scope. The system is based on a Telema 1000 microcomputer with two terminals and it will help to handle the expected 10% increase on last year's 8,000 bookings.

Wizard system for finance models

by Maggie McLening

HEDGING its bets in the financial modelling market, time sharing bureau Comshare has launched a product for mainframe users. Called Wizard, the new system is to be available as a bureau facility, lo contraat to Fastplao, a modelling system which Comshare recently launched for clients tn run on their own in-house micros.

"We decided to separate and go up and down market," explained Nigel Peodse, financial producta marketing maoager.

Wizard is designed for multi-dimensional business modelling, and can handle over 2,000 variables, which is equivalent to 2,500 master lines in Planmaster or over 5,000 rowa in FCS, two other widely used financial modelling packages, according to Comshare.

Pendse describes Wizard as an "intelligeot database, a hypercube for multistructural modeling."

"The user can slip in anywhere and state formulae for calculations, and the syatem spreads them top-down globally," Pendse added.

A microcomputer veraion will be available at the end of May, but will not be sold as a standalone system through dealers.

"It will be sold more in the context of the Wizard aystem, for people who also have the mainframe version, and would therefore not be competitive in a aimplistic market," explained Glyo Read, strategic planning director of Comshare.

Comshare expects sales of £1 million from Wizard in the UK in the first year.

Entries roll in for DP Olympics

ENTRIES for this year's Computstars are coming in thick and fast. Last season's champions, BL, are fielding five teams, and Case, who took the individual gold medal in the first two years of the competition, are back with a vengeaoce – four teams will compete this year.

The defeated finaliats in the 1981 Computatug, the Worthing Rams (otherwise known as the Inland Revenue), are back, as are last year's European winners, Kalamazoo, with three teams.

Legal and General has entered again, but without last year's ladies champion, Bridget Cuthill who is leaving to get married. Whether this will affect L&G's "invincibility" remains to be seen.

Entries can be in any ooe of four categories: Men's or women's teams in the main competition and Computatug, the Small Units section, which is restricted to companies employing fewer than 25 staff in a 25-mile radius of the location of the team entering, and Veterans, which is limited to members who are 35 years old or over on February 1, 1982.

Full details of the rules and regulations can be found in the February 11 issue of Computer Weekly, and all entries must be in by March 19.

COMPUTASTARS ENTRY FORM

We have read and accept the conditions nf entry for the Computstars/Computatug 1982 and would like to enter

Main competition ....Men's teams
Small units ....Men's teams ....Women's teams
Veterans ....Men's teams
Computatug ....Men's teams ....Women's teams

Name of team(s)..
Company..
Address..
....
Name of contact..
Telephone..Extension..
Signature of DP manager or equivalent authority..
Position held..

We would like to compete in the following region:

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MIDLANDS (BIRMINGHAM)
SOUTH (CRAWLEY)

please circle appropriate region

Enclosed is £..........to cover the entry fees for the teams(s). Cheques should be made payable to Computastars Ltd.

In all matters relating to the rules or conditions of entry, the decision of the organisers is final.

Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690

Sponsored by Computer Weekly

Dates and venues: Crawley, Saturday, May 15. Enfield, Sunday, May 23. Barnsley, Sunday, June 13. Birmingham, Saturday, June 26. UK finals: Birmingham, Saturday, July 24.

If you have a query on Computastars please don't contact us at Computer Weekly – get in touch with the organiser at 117b High Street, Croydon CR0 1QG. Tel.: 01-688 6690.

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ADP, Aregon team up on viewdata range

by Dooald Kenoett

COMPANIES wanting to extend their computing facilities to a much wider range of users could benefit from a new range of viewdsta services being marketed through ADP Network Services and Aregon International.

The services will be marketed under the name ADP/Aregoo, initially io the UK and in other countries later this year. The range includes oetwork and bureau facilities, turnkey systems based oo Digital Equipmeot PDP-11/23 and PDP-11/44 minis, viewdata software for existing installatioos, and gateways to give access to any other computer or network.

The functioos supported include high-resolution graphica for disgrams and digitised photogrsphs. These are accessed through the £1,000 AGP audio graphics processor, which was developed by Aregon with the Open University as the Cyclopa terminal.

Mailbox facilities and access to data processing services are also supported, as well as the standard information retrieval and data collection functions, using standard viewdata terminals.

Aregon Internatiooal's managing director Anthony Chandor said the viewdata services were expected to generate £500,000 worth of business in the first year. "We are now showing people they can save money with a videotex (viewdata) system."

Chandor added, "It seemed to us that the next surge forward would happen by allowing them to access bureau services and rent their own oo-site services oo an annual basis."

ADP managing director Brian Tytherleigh said the ADP/Aregon services combined hardware, software, maintenance and consultancy with access to both national and international communications networks.

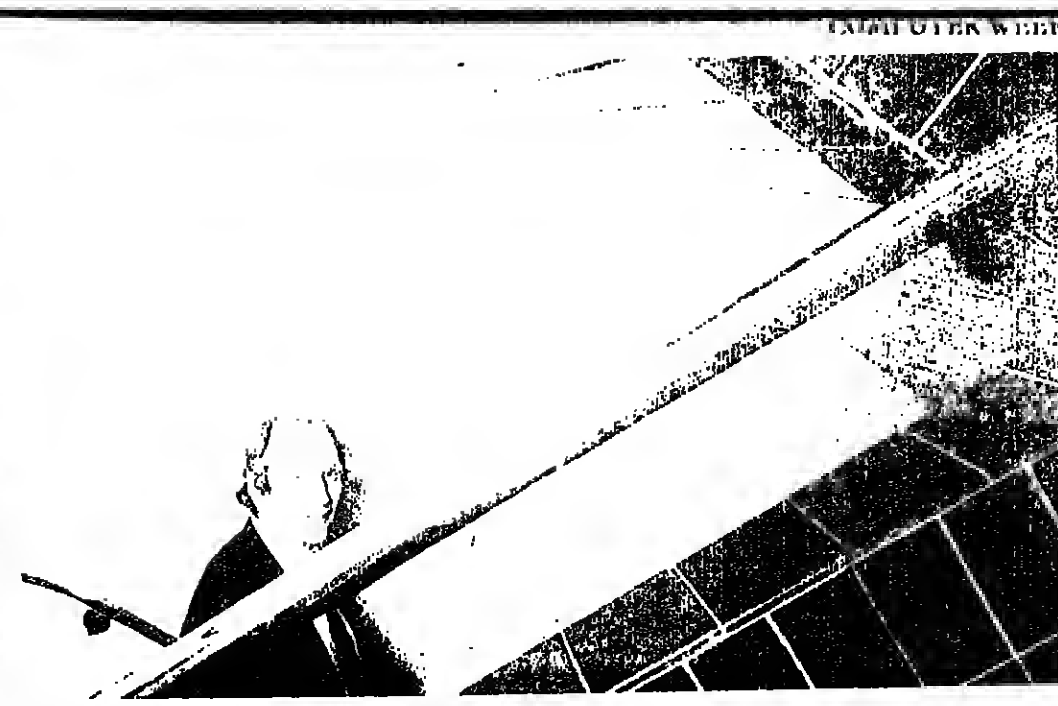
ADP is the European subsidiary of Automatic Data Processing in the US. Its oetwork provides local-call access in 30 locations in the UK out of a total of 100 worldwide. The viewdata package will be marketed in a number of other countries, probably including Holland, West Germany and Italy this year.

One US client is evaluating the viewdata software for a specific application, although ADB has yet to decide to market it actively there. France is expected to be a big market for private viewdata, but ADP may tackle it with a local solution if it finds there is too much hostility to a British product.

Using the ADP/Aregon service would cost £3,000 a year for 500 pages and 50 hours a month access time on the bureau mschine, or from £20,000 a year for a system on the customer's aite. The latter would be based on a PDP-11/23 with eight access ports and Winchester disc sinrage with tape streamer back-up.

The AGP high-resolutioo graphics terminal is expected to appeal to a very small proportion of users, but is felt to be an essential onswer to competition from Canadian-built viewdata aystems which feature more sophisticated graphics than the current version of Prestel.

The terminals are currently being made for Aregon io batches of 25 and Chandor said the price would drop from £1,000 to £700 each for anyone who ordered 50.



CHANDOR . . . *People can save money with viewdata.*

3081 users gang up

● From front page

pond to terminals as quickly as we expected."

Pat Sullivan, vice-president of US consultants ACT, and an expert on IBM's big systems, confirmed Standard Life's experiences. He said that tests in the US had shown that the 3081 processor was faster than IBM has claimed, but that where the input/output load is high there could be performance shortfalls.

IBM is not alone with the problems. They have also affected National Advanced Systems' Japanese-built AS9000, which has a similar power rating to the 3081D.

"Large processors today have very varinble performance ranges," says Brian Burch, director of large systems at NAS, "and it is not possible to predict where in that particular range a particular workload will drop.

"You cannot construct realistic benchmsrks for the production environment of a large scale system becsuse you cannot simulate 1,000 terminals."

"The vsriable power rating is due to a bottleneck in the aystem's architecture," added Burch. He believes it will be cured when Extended Architecture MVS/XA becomes available.

Re-launch by private viewdata pioneer

by Donald Keanett

ONE of the first companies to put s private viewdata system on the market in the early days of Prestel has re-packaged aod re-launched its system.

Twyford-based software consultancy and systems house D. M. England has sold only 15 of its editing terminals and one copy of the viewdata syatem software package it developed in 1978 to run on the Digital Equipment PDP-11 range. But it has continued to refine the system, now called Miracle Viewdata, and is gearing up to meet what it sees as a renewed interest in viewdata, particularly in private viewdata.

Marketing manager Alan Howard said: "We don't see ourselves as being io large quaotity terminal manufacture, but we can be quite strong in editing systems because we start at a modest level."

He thinks the system will account for no more than 10% of this year's expected £1 million turnover.

The company has set up batch production of the system at its assembly plant near Taunton and has one salesman out of a staff of 35 promoting it full-time. It makes its own editing terminals using an Intel 8085-based control unit and keyboard of its own desigo, with a modified Ferguson Movie Star colour television as a display.

For the central database, it builds multi-vendor Winchester disc-based systems around the Digital Equipmeot LSI-11/23, which it buys in as a printed circuit board, or puts its software on to standard Digital Equipment systems to handle larger capacities. The LSI-11/23-based version would be expected to handle up to 48 terminala at once, probably six of them being editing terminals.

Enhancemeots to the editing software on the new versioo include commands which enable blocks of text and graphics to be moved around the screen and colours to be changed in blocks instead of row-by-row. A single key-depression displays all the control characters that are in use.

The price of the editing terminal is £950. Software for the central system costs £3,800 including a gateway facility for linking to other computers. The editing and bulk update modules are £1,990 and £990 extra respectively.

Miracle Viewdata.

Mid-range Series 1

by Kevan Pearson

A MID-RANGE version of its Series 1 minicomputer has been launched by IBM.

The new model, designated the 4954, fits between the existing Series 1 processors and is priced at £5,343 for the standard 64-Kbyte version.

Maximum memory is 256 Kbytes, which places the machine mid-way between the 128-Kbyte maximum of the smaller 4952 and the 512-Kbyte memory of the top-of-the-range 4955.

The new machine is available with the same eight software address spaces as the 4955 for multi-programming.

The processor is manufactured in Italy and scheduled for delivery in May 1982.

Talking terminal

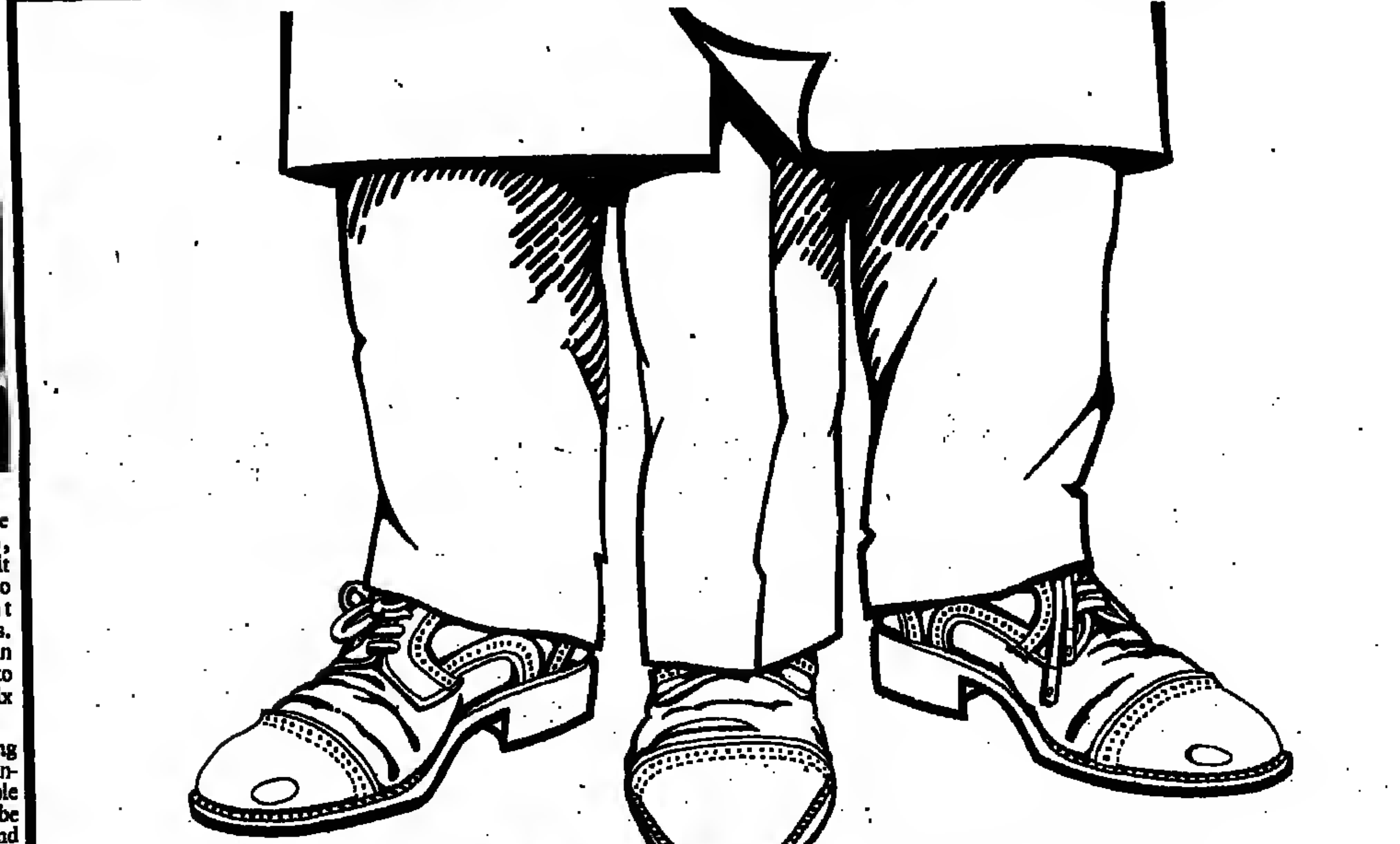
by Kevan Pearson

BLIND or partially sighted computer users have been given a boost by the launch of IBM's audio option for its 3278 terminal.

The Audio Output Feature produces electronically synthesised speech from the information which is displayed on the screen.

The talking version of the 3278 has an additional 16-key keypad and three extra controls; otherwise it looks like a normal 3278 and can be used as such by normally sighted people.

At £3,300 the unit is three times the price of a standard 3278, and the audio option is not available as an add-on feature for existing terminals. There are thought to be about 200 potential users in the UK.



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DEC sales shift means more support for small user

by David Craver

WITH Digital Equipment's authorised distributor programme now firmly in place, the first dividends should go to DEC's smaller customers, who can expect better service and support.

The official announcement of the five UK authorised terminal distributors Rapid Recall, Bytech, Zygal, MBS Rentals, and Abacus – was made last week, although their names had been widely known since the beginning of the year.

Thus the final strokes have been put to DEC's strategy to shift most of the low end of its business to distributors. And that strategy is likely to be emulated increasingly by the other major computer manufacturers, who are finding it more difficult to provide adequate levels of support to customers as the cost of hardware continues to decline.

DEC had been plagued by the collapse of some of its leading OEM systems houses, and there has also been some disarray in the terminal market. The authorised distributor programme is designed to ensure that DEC has more control, while at the same time providing better pre- and post-sale support for users at the local level.

Eight commercial OEMs have been named since the scheme was announced two years ago – ACT, Alveronic, Applied Computer Systems, Arbat, CHA Group, Hoskyns, Management Control Systems, and Online Computing of Dublin.

Bill Passmore, UK marketing manager, said that the number of commercial OEMs would increase, but in ones and twos rather than half a dozen at a time. He would like some of the big names, like CAP, to join the authorised distributor programme, but their reputation is such that they can continue to market DEC kit without DEC's imprimatur.

The number of terminal distributors will probably stay fixed at least until their effectiveness can be assessed, Passmore adds.

The DEC sales office has changed significantly since the early 1970s, Passmore states, and now concentrates on big systems or high-volume orders to companies like BL, which might take 200 terminals at a time.

SEAL OF APPROVAL . . . Representatives from DEC's new terminal distributors Zygal, Bytech, MBS Rentals, Rapid Recall and Abacus.

CARRUTHERS . . . DEC terminals for the "executive on the move".

Executive terminal plugs into phone system

A PORTABLE terminal for the "executive on the move", which allows remote access to computers for electronic mail, sales data, contract preparation, and medical data, has been released by Digital Equipment.

The hard-copy unit, called the Correspondent, will link into any European public telephone network, and marks DEC's entry into the portable terminal market. Nigel Carruthers, European product manager for terminals, describes it as being at the "premium end of the market", which is indicative of DEC's general strategy in terminal sales.

Carruthers refers to DEC's popular VT100 video as the "most copied and emulated terminal in its class", and claims that recently added features, which include graphics capability and the option to turn it into a personal computer, will ensure that the series continues to capture a big share of the high quality market.

DEC's terminal division has been outstripping the company's already high growth rates. Across the whole range of videos and printing terminals DEC reckons to have 15% of the market, with that share going up to 20% in the next five years.

With the enhancements to the VT100 the large number of terminal manufacturers who have been emulating the unit may find the carpet pulled out from under them, particularly given the widespread interest that has been reported for the personal computing upgrade.

The Correspondent incorporates either a direct connection modem or an acoustic coupler, or both, has 132-column printing, and bit-map graphics capabilities. Costing from £1,351, the unit is designed to meet International Air Transport Association regulations for airplane baggage. Deliveries are scheduled for July or August.

Zygal presents the Digital personal computing option for the VT 100.

Zygal Dynamics, already one of this country's leading suppliers of office computer terminals, now presents possibly the world's most exciting personal computer package - the Digital personal computing option.

The Digital CP/M personal computing option package includes: CPU (Z80), Dual mini floppy drives, Diagnostic disc, User documentation and guide, Installation hardware.

It means that the VT 100, the world's most widely used professional ASCII video terminal, can be turned into your own desktop office computer in minutes. No sacrificing easy-to-read commercial quality video. And set-up functions you can personalize for yourself right from the keyboard.

Other features include: smooth split screen scrolling, double height double width characters, reverse video. It also features the decade's fastest-growing family of software - from high-level languages to everyday financial modelling, word processing, mail list, statistical packages and data base communications.

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Task force to coax UK into cashless society

by David Craver

A CONSORTIUM of UK companies to stimulate the development of personal microchip cards has been drawn together by the British Technology Group. BTG is acting as a catalyst for the work of the task force, which has been set up to counter advances made in the US and France.

Commenting that personal microchip cards are "obviously going to come into mass use," a BTG spokesman said the object is to get British technology knowhow mobilised. Actual development of the cards will be left to individual companies, but BTG would be receptive to applications for funds at that stage.

Membership of the task force, called the Tokens and Transaction Control Consortium, is open to any interested companies, with a token donation necessary to fund the administration of the group.

A first meeting was held a few weeks ago and included British Telecom, Ferranti, Marconi, National Giro, Chubb, Cadre Systems, National Computer Centre, the Post Office, National Economic Development Office, Pitney Bowes, and the National Physical Laboratory.

NPL brings its expertise in cryptology to the task force. Personal identification is an important aspect of the card, which has a very small microcomputer and memory chip built into it.

The major clearing banks have not yet joined the group, although BTG is anxious to have their participation. The banks' contribution would be crucial as the task force considers areas of standards, privacy and problems in developing the personal microchip card.

● Further evidence that the cashless society is at hand comes from the 12 high street banks. They state that after the first year of a promotional campaign to encourage payment of wages directly to bank accounts, the number paid on this basis monthly has increased by 600,000 to 5,650,000.

Terry Duffy, president of the Amalgamated Union of Engineering Workers has been exhorting union members to accept monthly payments, and says the union's own employees are being offered an incentive increase in salary of one per cent if they accept non-cash payment of wages.

An interesting aspect of the switch to monthly automated payments is that in many cases employers have passed on savings to employees in one form or another, an example of the benefits of new technology being shared with the workforce.

This has taken the form of a lump sum payment, increased employee discounts in retail operations, and other schemes.

There are now 7,300 cash dispensers in place between the 12 high street banks, and by the end of this year the figure will reach 4,500, a spokesman said.

DUFFY . . . Exhorting union workers to accept non-cash payment of wages.

NEWS BRIEF

100 new jobs in Scotland

US-OWNED electronics and instrumentation company Beckman Instruments is increasing its workforce at its Glenrothes factory in Scotland from 300 to 400. Another 30 people are planned to be taken on in May. The expansion is to meet strong demand for the UK-developed resistor network works increasingly used in digital electronic equipment.

Advice offer

AN association has been formed to give independent advice on computers and systems. The Association of Professional Computer Consultants will offer the services of independent people bound by a code of conduct, and free of commitment, to any computer supplier. APCC is at 109 Baker Street, London W1M 2BH.

Top jobs decline

DEMAND for people to fill top jobs in computer companies fell sharply in 1981, although there was a national rise in the overall number of executive job advertisements. Computer jobs fell by 16% over 1981, whereas the total number of jobs irrespective of category rose by 22%.

Centre for sale

INTERLINK House, the former Vickers computer centre at Newcastle, is being offered for sale at £330,000. The centre, which closed last November, was an accounting and management base for the Vickers companies on Tyneside. The installed computers are extra to the asking price.

Bumper plans

SYSTEMS Group, the California-based small business system manufacturer, is planning for a bumper year in 1982 with a growth forecast of 400% over 1981, itself a record year.

Training for hire

A NATIONAL scheme for hiring training material will be set up by the National Computing Centre in March. Video tapes and packages such as Basic Computing Concepts will be available on a weekly or monthly basis, and will be on display at the NCC's regional offices.

Sales increase

CALIFORNIA-based software and systems house Informatics recorded a 19% increase in sales of almost $126 million in 1981. Earnings rose by 25% in the same period.

Name change

SE Laba (EMI), the Middlesex-based computer technology arm of Thorn EMI, has changed its name to Thorn EMI Datatech. The company is a leading UK supplier of modems and data storage equipment.

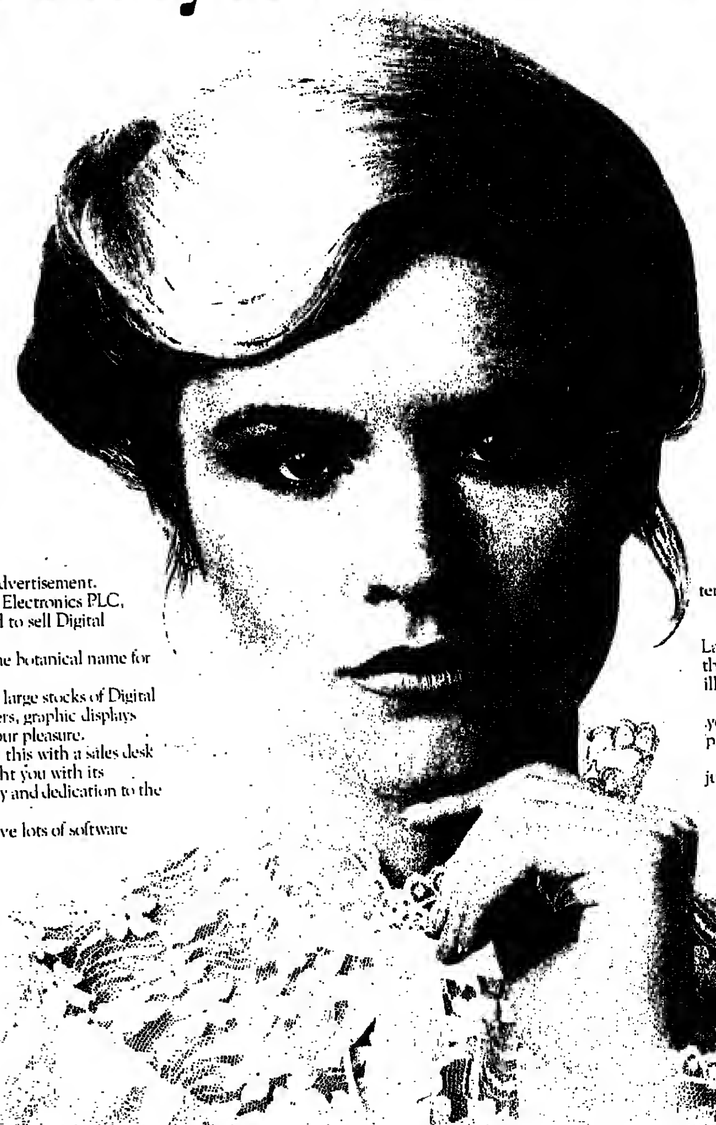
Paper package

A PROCESS control and management information package specifically for the paper making industry has been developed by AccuRay of Columbus, Ohio. Combined with paper machine and pulp mill control systems, the Micro/Manager 8000 is claimed to provide a fully integrated process control and information network communicating with a wide variety of minis and mainframe computers.

CP/M in colour

AN interactive colour graphics package for microcomputers running under the CP/M operating system has been launched by Lifeboat Associates, a leading software publisher. Costing £255, the Graftalk system includes a digitiser option and joystick mode with light pen support.

The Lady Henrietta Foxglove.



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...ports on the battle being fought between the US and Japanese to produce 'super' memory devices

Ten companies join the race to produce 256,000-bit chips

COMPETITION is rapidly intensifying in the race to be first into production with the next generation of memory chips, the so-called "super" chips, which will store at least 256,000 bits. About ten contenders are now in the field.

Many of the computing companies chose this month's International Solid State Circuits Conference in San Francisco either to add details to already announced designs, or to outline further developments to existing laboratory products.

The market for the chips is estimated to be worth anything between $7 billion and $15 billion by 1985, when they will provide the means to very fast new mainframes. These will include Gene Amdahl's Trilogy machine and ICL's 12mips Estriel.

The characteristics of the devices, apart from increased capacity, include increased access time, without which the very high processing speeds predicted for the fifth generation machines will never be achieved.

To attain this very high access time the distance between circuits in the chips must be reduced from current production levels of three or four microns, to about one micron or less.

The key word is production. Laboratory advances have enabled Fujitsu and Ferranti to achieve sub-micron circuitry, but translating one-off laboratory production into mass production at these very fine line widths, is not easy.

The most important announcements at ISSCC, therefore, were those which dealt with production, rather than development of the chips.

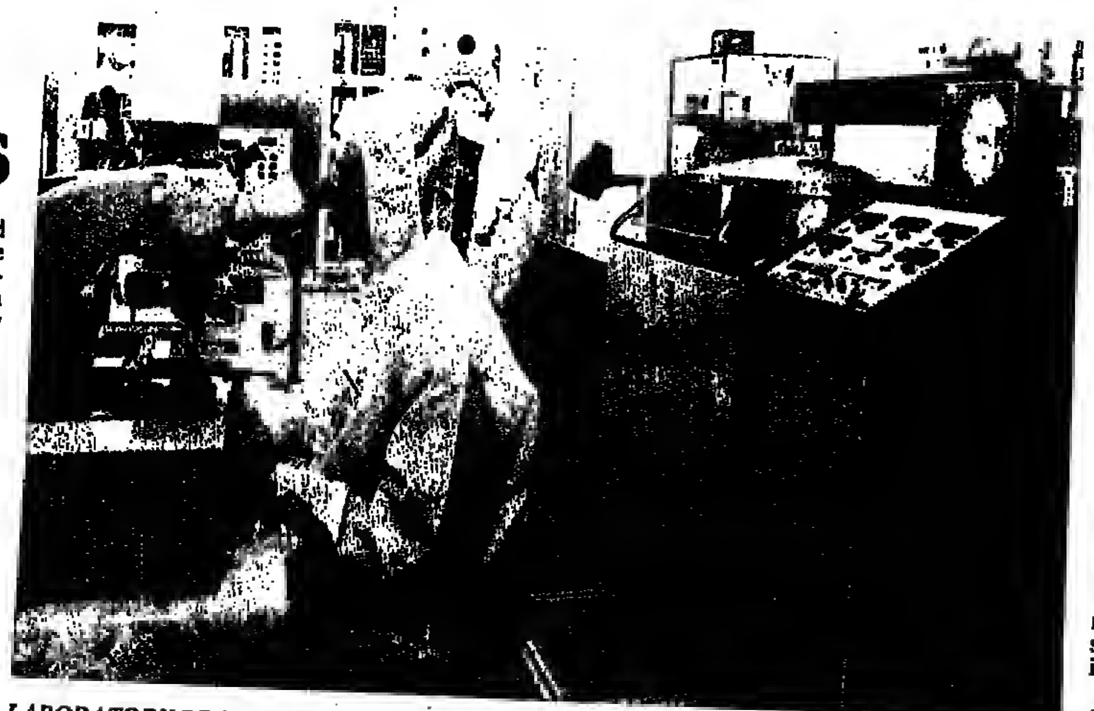
Although the limelight at the show went to Hewlett-Packard's announcement of its six-chip 32-bit microprocessor, the key 256K generation announcement came from IBM.

Engineers from the company described a seven millimetre square bi-polar silicon chip which can store 288,000 bits of data in 9-bit bytes. The 288K chip is not a standard configuration and does not conform to the general belief that the main memory chip in the next generation will be 256,000 bits.

The engineers who presented the papers detailing the chips both work at IBM's Burlington, Vermont-based semiconductor plant, where IBM claims to be mass-producing 72K chips currently.

This is the biggest chip known to be in mass production anywhere.

The IBM 288K chip is described as "being produced as an experiment from a production line".



LABORATORY PRODUCTION . . . Mass production becomes increasingly difficult as circuit dimensions reduce.

The access time for the chip is quoted at 350 nanoseconds, and the minimum feature size is 2 microns.

To further emphasise the company's pre-eminence IBM engineers described another non-standard device, this time a gate array chip which is in production at 4,208 gates and includes a 13K memory RAM.

Current gate array chip production is taking place at about 2,000 gates with Fujitsu implementing a 1,300-gate chip in the M380 mainframe which it will market with ICL.

Ferranti is sampling a 10,000-gate chip and LSI Logic in California is scheduling a 10,000-gate NMOS chip for production late next year.

To complete the American picture in the 256K race Bell Labs and Motorola both made announcements at ISSCC.

Bell will begin manufacture later this year on a 2.3 micron width 256K chip which the company expects to have an access time of 105 nanoseconds, the fastest time quoted for any of these chips.

Motorola is planning to show a 100 to 150 nanosecond access time 256K chip at the Wescon show in California in September.

The company has made no predictions about production dates but commentators think it will be at least 12 months before users have received properly evaluated samples of these products.

Intel, which stole the limelight at ISSCC two years ago when it introduced the first 256K design, made no follow-up announcements, and company officials say that next year is the earliest the company will be producing the chip.

It is currently selling a 128K EPROM which customers in Europe are now receiving.

Intel revealed details of its new production process HMOS III. With this process, which can implement 1.5 micron technology using 2 micron ground rules, it should be possible to produce 256K chips. Texas Instruments has said little other than that it has a 256K RAM in development.

The Hewlett-Packard announcement, while essentially a computer product event, had very important implications for the type of technology needed to produce 256K chips with reasonable yields and redundancy. The main RAM in the six-chip microprocessor is claimed to have 660,000 transistors on a single chip, which is about 50% more than most other manufacturers have been able to achieve.

The whole chip is claimed to be in production at one-micron level. This is one to two orders of magnitude greater than any other known production technology.

With production at those levels of density, observers were surprised that HP had used six chips and a 128K RAM rather than, say, a 256K RAM and three chips.

But the key point at ISSCC was that none of the three key Japanese contenders for early 256K production, Oki, Fujitsu or Hitachi, revealed their plans.

News from the Japanese came mostly in the informal sessions, although the Hitachi marketing plan which is available now in the UK shows that the company intends to start marketing a 150-nanosecond 256K EPROM in the summer and a 150ns 256K RAM in the autumn.

Officials from Oki were equally emphatic about their plans. The company has been shipping samples of 256K RAMs since last September, mostly to divisions of the company. Full production is said to be set for 1983.

Fujitsu, which sent a large number of delegates to the conference, was still maintaining its declared position of last year. The company has a 256K chip which it will reveal in due course. NEC, which with Toshiba was a major participant in the VLSI project which produced the Japanese 256K design, is also reckoned to be either sampling or on the verge of sampling.

NEC/Toshiba, using a joint subsidiary, were reckoned to be the first to send samples of their wares to companies in America last autumn.

Just as the US has been pipped to the post, for world market share, by early Japanese production of 64K technology, it now looks as if the US is about to lose out just as significantly in the next round.

THE 256K STATE OF THE ART

Company	Chip	Technology	Access Time (nanoseconds)	Samples	Production
NEC/Toshiba	256K	CMOS	200	Sept 1981	Early 1983
Oki	256K	NMOS			
Hitachi	256K RAM 256K EPROM	NMOS	150 100/150	Oct 1981 Now	Late 1982 Autumn 1982
Fujitsu	256K	CMOS	100/150	Now	Summer 1982
IBM	288K				
Motorola	256K RAM	CMOS	350	Now	Not declared
Bell Labs	256K		100/150	Sept 1982	1984/85
Intel	256K	HMOS III	105	Late 1982	1983
Siemens	256K			1983	Not declared
Texas Instruments				Design stage currently	

Only NEC/Toshiba have made prices estimates, which suggest a price of about $20/30 per unit. Only IBM predicts yields (good chips). It estimates yields of about 60% for the 288K chips.

US is losing 64K RAM fight

by Louise Kehoe

AS prices for 64K dynamic RAMs continue to fall — the lowest prices are reported to be $4 each for high volume orders for slow parts on a long delivery schedule — the prospects for any US semiconductor manufacturer making a profit in the market are fading.

Although optimists look for some steadying of prices, or even a slight rise as demand increases, others have already conceded the market to Japanese suppliers.

Though one school of thought has it that the best defensive action US manufacturers can take is to forget the 64K RAM and concentrate on bringing a 256K RAM to market, others argue that US manufacturers have put too much money and time into the development of 64K RAMs to see them ousted.

Among the US manufacturers, Intel, National Semiconductor and AMD have still to bring a 64K RAM to market. Intel is rumoured to be on its fourth or fifth design — and still to be having problems. The company has put back the introduction of its product until the third quarter of the year.

National Semiconductor's 64K dynamic RAM is also still not available. It incorporates an innovative triple polysilicon layer that makes it more complex to produce.

Texas Instruments and Motorola are the only US manufacturers currently supplying 64K parts in volume. Motorola has recently introduced a newly designed part faster than its previous design. According to a company spokesman, the part is specified at 150 nanoseconds access, but is yielding well at 90 nanoseconds.

This will allow Motorola to supply 120ns parts when demand for faster RAMs picks up. According to industry sources, most customers are looking for 150ns access time now, although they expect demand for 120ns to pick up next year.

Motorola and Texas Instruments are between them estimated to hold about 30% of the world RAM market, but Japanese manufacturers supply the rest. TI has been more successful with the US mainframe manufacturers, while Motorola has sold a lot of parts to distributors and minor accounts. In the 64K RAM market, mainframe customers are said to account for only about 50% of the market — a much lower proportion than in previous generations of dynamic RAMs.

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P-E's mini 'equals mainframe'

by Maggie McLening

IN a bid to capture a slice of the mainframe market, Perkin-Elmer has added a new machine to the top end of its 32-bit minicomputer range, which it says gives mainframe performance.

The company strengthened its position in the minicomputer market by launching the low-priced 3210 model last year, to fight off encroachment by Data General, Hewlett-Packard and Digital Equipment, but now is aiming to extend its market on performance as well as price.

"There is an explosion of people wanting number crunching systems, particularly in the seismic and computer-aided design areas. The price of oil is making companies reprocess their old magnetic tapes of survey details," commented Fred Mascarenhas, Perkin-Elmer's product and marketing manager.

The new machine is a 32-bit "supermini", the 3250, and has been designed to handle large, complex applications such as scientific research, CAD/CAM and high performance commercial transaction processing.

MASCARENHAS . . . Perkin-Elmer bidding for a share of the mainframe market.

"It gives very high performance in TP applications: for any given level of VDUs, using the 3250 will give better response than a mainframe," said Roger Eden, Perkin-Elmer's new marketing manager.

A typical system including one Mbyte of memory, console, an 80-Mbyte disc drive, 75 ips dual density tape, floating point processor, battery back-up, 10 communication line ports and operating system costs £98,000.

A Universal Optimising Fortran compiler has also been announced by Perkin-Elmer for the whole range of 3200 equipment, including the 3250.

Software house moves to where the oil is

by Philip Hunter

UK SYSTEMS consultancy Systems Designers Ltd, SDL, has opened an office in Aberdeen to exploit the booming demand from the oil industry for real time software. It claims to be the first large technical applications house to have done so.

Until now SDL has specialised in real time communications and defence systems on minis and micros. "We are now moving into the energy side," explains SDL's business development manager Richard Marsden. "Our work on the defence side transports easily to industrial and especially energy applications."

SDL expects to take between £500,000 and £1 million worth of business on the software side of the energy industry in the next year. Already it has landed a £200,000 contract from a big oil company for a process control system.

SDL will be supplying turnkey systems and supplementary staff to oil companies for real time production, mainly in the business of moving oil from the wells to land. It will also make contributions on the refining side, where microprocessors to monitor flows, viscosity and octane levels are already playing a major role.

"Aberdeen will be the Silicon Valley of the future," says Marsden. "Other software houses will soon follow us up there."

The Aberdeen office will be staffed initially from SDL's southern office, but will soon recruit local people. "We find it very difficult to recruit staff of sufficient calibre anywhere," Marsden complains.

SDL is budgeting for 40 new staff in 1982, mostly experienced systems engineers and consultants.

"We do take some graduates too," says Marsden, "but we don't let them out for a year or two until they are sufficiently experienced."

SDL employs 350 people, 260 of them technical staff. It turned over £7 million in the year ending December 1981, and has recently opened offices in Gloucester and Washington DC.

MARSDEN . . . "Our defence work transports easily."

Forty-one branches linked

by David Craver

A BRANCH teleprocessing system is being installed by the big Commercial Union insurance company, which will link computers at 41 branches. Almost £400,000 worth of data communications equipment has been ordered for the network from Thorn EMI Datatech, formerly known as SE Labs.

The network will allow all of Commercial Union's main branches to transmit new and amended policy information to the central computer in Whiteleafe, near Croydon. The data will be processed overnight on IBM mainframes, and transmitted back to IBM 8100s located at the branches.

The branch teleprocessing system is being phased in at one branch a week, with all branches to be on the network by July this year. At first, the system will handle only motor and personal insurance, but will be extended to all other aspects of the company's business later.

The two types of Datatech modems to be used in the network are the 9620 and the 4820, which operate at 9600 bits per second and 4800 bps respectively.

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National strategy is boosting Japan into fifth generation

In a year in which some of the most innovative managers in the computer industry, Gene Amdahl and Robb Wilmot among them, have identified one Japanese company, Fujitsu, as the likely source of the most advanced microelectronic technology for the remainder of the 1980s, it has become essential to try and understand exactly what the Japanese are planning to do in the computer field. And exactly how they intend to apply this advanced technology.

In the preliminary report on the fifth generation computer project* which was released and discussed publicly late last year, the Japanese have done much to tell the world what they intend to produce in the next 10 years.

If they succeed they will hold the key not just to computer development, but to the oft-predicted application of computer technology for uses throughout society.

In this phase computers become the key factor in the conversion of data into information for decisions, and ultimately the devices on which mankind relies for the monitoring and control of society and its infrastructure.

In the preliminary report, the first thing the Japanese academies and industrialists define is what they expect the machines to contribute at a social or, if you like, political level.

In the first place, says the report, "fifth generation computers are expected to increase productivity in low productivity areas."

This hackneyed phrase conceals the most ambitious aim of all, which is to help make Japan self-sufficient in food.

The report identifies "farming, fishing, distribution and public service as four of the essential areas which have benefited the least from computers and automation so far."

Describing the failure to automate in those four areas as "the cause of serious social imbalances", the report elaborates the framework into which the fifth generation is expected to deliver its productivity goods. "The framework is a liberal, wealthy society which has overcome the constraints of resources and of energy."

The instinct is to dismiss those plans as pious eyewash, but the project and its aims are in the mainstream of the kind of grand national strategy which has pulled Japan from an also-ran into the lead position in one manufacturing industry after another.

The most pertinent of the projects for computer companies and users is the recently wound-up, £120 million VLSI scheme.

Using their technique of setting collective goals in a framework broader than the specific technology they are addressing, four Japanese companies will this year commence volume deliveries of 256K dynamic RAM chips. Nippon Electric, Oki, Fujitsu and Hitachi are already at this level of development while most computers use 16K memory chips and even 64K components are not universal.

Unlike the VLSI project, which ran for two and a half years, the fifth generation computer project will probably run for six or seven years. It will eventually be wound up by a combination of a complete transfer of the technology to general industry on the one hand, and on the other by the spread of specific applications to affect issues so broad that their use becomes a political decision.

Interestingly, the first aim of the fifth generation excludes all mention of military applications.

"Fifth generation computers will be a central tool in all areas of social activity," says the report, "including economies, industry, science and art, administration, international relations, education, culture, daily life and the like."

As befits the Japanese method of avoiding direct statement where possible, this part of the report is littered with the implications of things left unsaid. But the ability to plan for a new generation of computers with no direct military application and built without military ends in mind will alone give Japan something like a two-year production lead on the Americans and a four- to five-year advantage on the Soviet Union.

This conclusion can be drawn from the level of funding and subsequent output which the US computer industry gets for military applications. Direct military "specification" funding was running at about $5 billion in 1981, and will go still higher with President Reagan's latest plans.

Although military expenditure, particularly in the US, has always been credited with helping to get new developments into early commercial production, the Japanese are now saying that by creating a big enough social and political requirement, their technology can similarly be driven to new heights of inventiveness.

This leads directly to the second and more overtly political goal of the fifth generation computer project.

According to the preliminary report, it is "to help Japan meet international competition and contribute towards international co-operation".

"Although we have mainly followed the lead of other countries in computer technology up to now," it goes on, "it is time for us to break with this outmoded tradition, and centre our efforts on the development of new computer technology based on our own conceptions, so that we can provide the world with new technology for international co-operation."

Again it is easy to dismiss this kind of language as sentiment. That, however, would be a failure to appreciate the strong element of pacifism within Japanese life.

Japan is very much a community. Concern for the community and unwillingness to go against its consensus colours much of what the Japanese do. It is in sharp contrast to the every-man-for-himself attitude inherent in the Western, and particularly American, commercial ethos.

The phrase "international co-operation" reveals that Japan is becoming increasingly conscious of the need to eliminate national barriers of trade before they can cause friction.

While clearly stating that the fifth generation project is Japanese, and will remain under national control, the participants from the government down are determined to stem future complaints about competition by sharing the project with the world.

The report identifies four specific areas in which the Japanese foresee international co-operation under the fifth generation project. They are:

- Construction and maintenance of database;
- Development of language translation and interpretation systems;
- Improving productivity with the aid of intelligent robots; and
- Accelerating research and development by using intelligent CAD systems.

Another stated aim for the fifth generation computer project is one that will appeal to all practical souls, though, for the Japanese, being practical at the level at which this report was conceived virtually coincides with national survival.

The report says simply that the information technology industry (and particularly its fifth generation component) should assist in saving energy and resources. A country which has a shortage of land and a population density about 40 times that of the US cannot attain self-sufficiency in food using existing methods. And the current level of self-sufficiency in energy is only 15% and that of oil a mere 0.3%.

There is nothing in the report which overtly ties the plans for conserving resources to commerce and profit. But it is plain that any country which leads in systems of this kind will have very saleable products available for international customers.

The very general areas in which the Japanese expect fifth generation computers to make a significant improvement, are stated as:

- Level of energy use;
- Improvement of energy conversion efficiency;
- Simulators for use in developing new resources of energy;
- Reduction of energy consumption in production using CAD/CAM techniques;
- Extension of product service life through damage detection and automatic recovery; and
- Reduction of the need to transport people unnecessarily by employing distributed systems.

The last of these aims, while among the most desirable when transport is a very large user of oil, may prove by far the most difficult to achieve. In essence it is the problem of why full trains pass each other every morning taking people to do essentially the same work, at about equally inconvenient points from where they live.

Which again raises the question of just how many of the benefits which fifth generation computers are supposed to provide can actually be delivered without political or social revolution.

The Japanese seem to be assuming that the benefits will be so attractive that the use of systems to obtain them will occur prior to the political changes (which will follow as the pattern of the new information society emerges).

In any case, issues such as these are skated over, for even the Japanese cannot plan so meticulously.

> Japan is increasingly conscious of the need to eliminate national trade barriers

Finally, a stated aim of the fifth generation computer project is to help Japan cope with an aged society. By 1990 over 12% of the country's population will be 65 or older.

"Our society is ageing at an unprecedented rate," says the fifth generation report. "Accordingly, a great increase in medical expenses and welfare costs, together with a relative reduction in the labour force, could become big social problems."

The report gives examples of ways in which the fifth generation computer might contribute to the problem of an abnormally large elderly group within a population, but does so in a confused way.

It suggests:

- Improvement and streamlining of medical and related information processing systems;
- Development of systems for helping the physically handicapped become active;
- Development of computer-aided information systems for the lifetime education of the aged; and
- Development of distributed processing systems for enabling people to work at home.

That final point might easily be overlooked because of its incongruous position in the report, but is in fact a reflection of a key element in modern Japanese thinking about computers.

Take the story of a Japanese-style entrepreneur.

One of the great modern business success stories is Matsushita. A company with a turnover of $13.6 billion was founded and run for many years by one man, Konosuke Matsushita.

When Matsushita retired he founded a university and started a magazine, with the title Peace, Prosperity and Happiness. Not the kind of banner to set the Western world alight, but nonetheless now the name of one of the biggest-selling Japanese monthly magazines, commanding a circulation of over 1.2 million.

The content is about better ways to live. A central strand in Matsushita's philosophy, which has also emerged in the management philosophy of people like Takayoshi Shiina, the man behind microcomputer manufacturer Sord, is that one day computers will liberate us all from the curse of commuting and free us to return, Thoreau-like, to the land.

That one phrase about enabling people to work from home expresses more about the real direction in which the Japanese hope the fifth generation computer will take us than most of the rest of the report. In Japan land is scarce and homes are small. So working from home and going back to the land has huge social implications, many of which do not even apply in other parts of the developed world.

They are bound up with what amounts to the report's closing word on goals. It is that the fifth generation must be developed and introduced with great care. Technology must not allow rulers to use computers as a tool for controlling subjects.

An admirable goal. If it can be achieved.

*Preliminary Report on Study and Research on Fifth Generation Computers, from Japan Information Processing Development Centre.

In the second instalment of this two-part report Kevin Cahill will examine how Japan intends to pursue its fifth generation computer goals.

Takayoshi Shiina, pursuing the fifth generation goal of getting computer power to the people, so that the next generation of computers will deliver genuine and widespread social benefits.

Consciousness of being part of a community [illegible] to go against the common [illegible] Japanese life.

The start of a new family tree?

SO far there have been three fairly clearly defined computer system "generations".

The first generation was typified in general by valve-driven machines such as the Leo 1.

The second generation was transistor based and typified by machines such as the IBM 1401. These machines depended principally on input from card and paper tape. Programming languages were primitive, and clearly defined operating systems had still not become readily available.

The third generation is based on the integrated circuit (IC) containing many transistors, and typified by machine ranges which include IBM's 360 and 370 series as well as ICL's 1900 and early 2900 series machines.

With the third generation came the widespread use and development of programming languages such as Cobol and Fortran, and the use of more and more sophisticated operating systems such as IBM's Power VS and later OS systems.

The fourth generation of computer systems is much less clearly defined and is based on very large scale integrated circuit (VLSI) technology. The fourth generation machines, such as the IBM 3081 and the Fujitsu 380, are only just beginning to appear. These machines remain chained to the current range of machine languages such as Cobol and Pascal.

The Japanese in particular consider this dependance a handicap, along with current slow methods of (keyed) input.

In general the Japanese appear to have accepted that the remainder of the fourth generation machines will be configured around existing languages and input. But the idea of framing the requirement for the fifth generation up to ten years in advance seems at least partly intended to ensure that the power of future computers is used to solve problems without having to submit those problems to emasculation via chain-logic based programming languages and slow input methods.

SOFTWARE FILE by Maggie McLening

Systems house gets its fingers burnt over distribution rights

CONFUSION over distribution rights has forced a split in the UK marketing of a database management system for microcomputers.

Software house Infodata has learnt that its rights to the system, called FMS 80, which it bought from a US software distributor, are to be shared with Reading-based systems and software house Terodec.

In November last year, Infodata bought from Systems Plus what it thought were exclusive rights to market FMS 80 in the UK. Shortly after announcing its availability, Infodata discovered that Terodec was also selling the product, having bought it direct from its designer, David Rodman of DJR Associates in the US.

Rodman claims that Systems Plus did not have an exclusive contract, and that although he knew that Infodata had approached Systems Plus, he had no idea an agreement had been signed.

"It was done behind my back and completely without my knowledge," he says.

Negotiations between DJR Associates and Terodec started in mid-December when Paul Joyce, managing director of Terodec, visited the Comdex exhibition in Las Vegas. Joyce was impressed by a demonstration of FMS 80 that he saw on the Systems Plus stand, but he went direct to David Rodman.

The result is the FMS 80-based Terodec Information Management System (TIMS), which Joyce is now selling for use on any microcomputer with a CP/M or CP/M compatible operating system.

"David and I really understand each other and will do our best to work together," enthused Joyce. Rodman was equally enthusiastic about Terodec: "Other than pride of authorship, watching my children grow, it's exciting to see the product used as it was intended," he said.

One of the major reasons for the success of FMS 80 is the integral Shell 80 package which provides a uniform operating enviornment for it within CP/M, and is modelled on Unix, the portable time sharing system.

Infodata, though disappointed over what has happened, is also being philosophical, according to Paul Armour, marketing director. "If anyone has been bitten, it's Infodata," he commented. "Naturally this has caused us a few heartaches, but it's a very big market and I hope we can work well together."

Infodata is aiming at the manufacturers' market, while Terodec is trying to sell to dealers.

Infodata is now no longer dealing with Systems Plus. Rodman says that he has put Terodec and Infodata on an equal footing and both are now contracted directly to his company. He emphasised that what has happened is not Infodata's fault and that he does not want to see the company hurt by it.

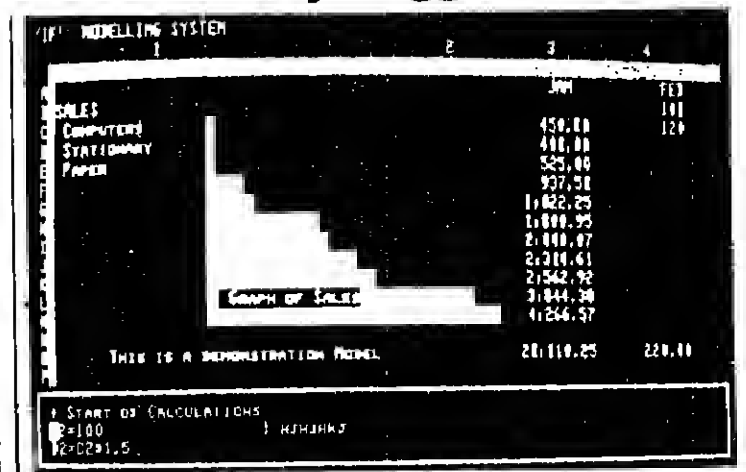
Neither side will disclose the exact sums of money that have changed hands. Joyce of Terodec said that he had paid heavily for the product, while Armour commented that the price had not been unreasonable or excessive.

Systems Plus will not commit itself on the question of whether it did own exclusive rights for UK distributorship at the time FMS 80 was sold to Infodata.

"There was a lack of communication, and it was right in the middle of transferring the rights to DJR Associates," commented Sam Omroo of Systems Plus.

RODMAN . . . "It was done behind my back."

JOYCE . . . "David and I really understand each other."



Graph of sales produced by If.

'Inexperienced users' can build these models

THE growing market for financial modelling systems for microcomputers is stimulating development of increasingly sophisticated systems. Bond Associates, the Chiswick-based software house, has introduced one which, it claims, combines the "simplicity of Visicalc with the abilities of Micromodeller".

Called If, the product is an interactive model builder which needs no computer experience to use it, according to Heather Simpson, managing director of Bond Associates.

"We looked at every other product on the market and decided that one of the major criteria was that it should be simple to use," she confirmed.

Data is set up in a matrix with 96 vertical columns and 256 horizontal rows, and can then be manipulated using the matrix co-ordinates and standard mathematical symbols. The screen acts as a window, so that any section may be worked on, or two sections simultaneously using a split screen.

A feature of If which Bond Associates believes to be unique is the ability to enter text into the matrix, opening the way for integration with word processing facilities which is planned.

"We also intend to bring out a new version soon to do consolidation, and put figures for three or four companies or departments together," explained Simpson.

The system has been designed initially to run on Texas Instruments' range of System 200 series small business computers, with 64 Kbytes main memory, but Bond Associates plans to widen the range of the product shortly.

The package is written in Assembler, but a Pascal version is planned to run under Unix or CP/M operating systems. It costs from £6,000 for a dedicated system, including hardware.

Trial versions of If were released in October last year, and so far six copies have been sold, including two to Switzerland and the US. A major launch will take place in Las Vegas in March, where Simpson has been invited to give a demonstration to Texas Instruments users at a symposium.

Westinghouse/On-Line deal

SYSTEMS software supplier Westinghouse Management Systems is to market packages for San Francisco-based On-Line Business Systems in the UK, Europe and the Middle East.

A specialist in products for the IBM market, Westinghouse has made significant growth through its low pricing policy.

To cement the deal, On-Line Business Systems has supplied Westinghouse with a program development system called Wilbur, which may be able to act as an electronic mail system in a future version. At the moment it provides document formatting and EDP production capabilities to OS and OS/VS installations.

It can also offer a substantial reduction in the resource requirements of TSO in medium to large time sharing installations, according to David Hazlewood, UK manager of Westinghouse.

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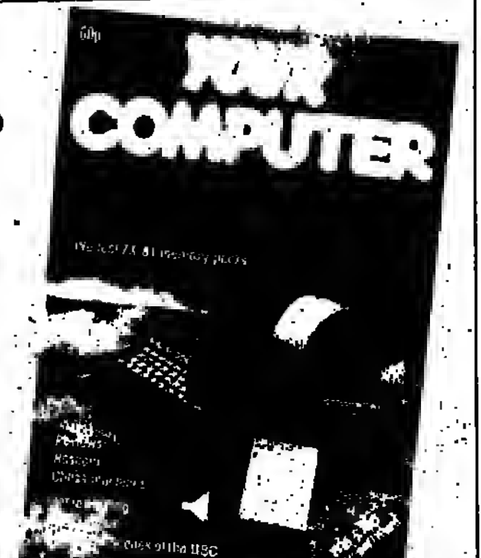

The March issue of Your Computer looks at the growing range of memory expanders for the ZX81 and explains how they enhance the power of your basic unit.

Also for ZX81 owners: how to generate music on your computer. Yes, it can be done!

Other articles in this issue include:

- Part II of our chess computer survey. This examines the powerful SciSys Chess Champion Mk V together with other new machines and programs.
- Reviews of the Nascom I, II and III and the latest products released by Lucas Logic.

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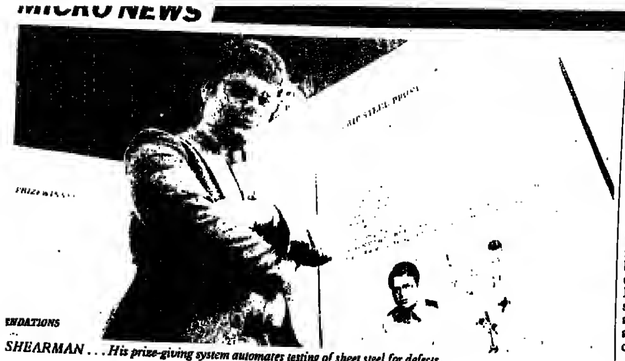


SHEARMAN . . . His prize-giving system automates testing of sheet steel for defects.

Testing device wins design award

MICROPROCESSORS pop up everywhere these days, even in competitions to encourage good engineering design.

A microprocessor strip-steel profilometer won Kevin Shearman of the University of North Wales in Bangor £250 in the 1982 Design Council Molins Design Prize. The contest is sponsored by Molins, a company known for precision engineering.

Developed in conjunction with British Steel as a project for Shearman's final year as an engineering undergraduate, the system automates testing of sheet steel for defects. It also means that the testing can be carried out by unskilled personnel.

The device carries an ultrasonic transducer across a steel strip, taking thickness readings on its way, and giving an alarm if it detects defects such as deep grooves, laminations or peaks in the steel.

All this is controlled by an 8085, with memory, I/O and timers in a five-chip system. As a background to the program actually running the mechanics, programs analyse the data and activate the alarm, time sharing through interrupts.

by Robert Parn

Micro vendors polish up sales techniques for small business market

VENDORS are having to re-think marketing techniques for small business computers as micros take over from minis and mainframes. Lower cost hardware means direct sales calls are no longer feasible, and more efficient sales methods are needed to survive the growing competition.

According to a market research study from Frost & Sullivan, there are more than 100 microcomputer manufacturers jockeying to cash in on a retail computer market with millions of prospective buyers.

To get at these, microcomputer vendors are exploring a multiplicity of different distribution channels, using a wide range of advertising themes and media to awaken businessmen to the possibilities offered by computers.

The study is concerned with small business computer use in the US, where it estimates there are 3.5 million businesses employing fewer than 500 people. Only 200,000 will have small computers by next year, the study estimates, leaving a market ripe for picking.

Small computers serving this will grow at more than 30% compared to less than 20% for large machines.

A user survey included in the study showed that the majority of users expect to spend less than $20,000 on their systems, with Tandy and Apple systems the most frequently bought and the most often desired.

Nearly two-fifths of these were bought at retail outlets, with direct purchase from manufacturers running second. Despite this, it appeared that customers would prefer to buy directly from manufacturers.

Most retail sales are made through independently owned stores, the report says, but computer manufacturers' stores, including IBM, DEC, Xerox and Tandy (Radio Shack in the US) show good overall growth prospects.

The report warns, however, that "those stores that sell their own proprietary systems only are threatened by similar stores that offer a variety of products."

Office equipment stores and department stores are also beginning to get in on the act, though department stores are seen as catering more for home users than for business interests.

The report adds that the market for home computers is not strong yet, as was shown by the failure of Texas Instruments' 99/4 personal computer, targeted strongly at home educational uses.

OEMs dealing with small business computers are moving more into vertical markets, supplying specialised software for particular businesses like construction, sporting goods or food distribution, which are not accessible to retailers selling general packages.

More than half of the OEMs specialise, the report estimates, and they tend to supply minicomputer hardware rather than micros.

The Frost & Sullivan report confirms the findings of other studies about trends in microcomputer marketing in the US: "Companies are experimenting with the right marketing mix, using trial and error and quickly abandoning unsuccessful approaches . . .

"In the next several years, the main targets of computer marketing will shift from data processing professionals to businessmen with no DP background."

Price is the most sensitive criterion for choosing systems, says the report. Application software, and adequate terminals with full-size screens and colour graphics, are also high on customers' priority lists.

Timex sells ZX81 in US

IT is not quite a business computer, but the Sinclair ZX81 is to get wider marketing in the US through an agreement between Sinclair Research and Timex, the big US watch manufacturer.

Timex is already a sub-contractor manufacturing the ZX81 microcomputers in Scotland. Under the marketing agreement it will sell the micro through its 175,000 US retail outlets under the joint Sinclair Timex range.

Sinclair's existing mail-order business based in Boston will continue until sales at the Timex outlets reach agreed levels.

All you want to know about home computers

LOOKING for the personal computer that really suits you and your family? Bemused by the abundance of software packages, cassette units, printers and terminals that you could use with the machine you choose?

Then maybe what you need is to visit the Computer Fair at London's Earl's Court from Friday, April 23, to Sunday, April 25.

The show covers personal computing, home computing, small business systems and the software and peripherals that go with them. It is designed to appeal to everybody, strongly featuring the second wave of personal computers catering for the needs — and purses — of the home computer buyer.

Special attractions at the show will include the ZX81 village, where some 30 companies will be demonstrating software and add-on hardware specifically for the Sinclair ZX81.

Visitors will also have the chance to see computer-controlled "mice" trying to find their way to the centre of a maze in the Micro Mouse Contest. There will be knockout heats and the Euromicro British final. Last year's winner was a British entry.

The Computer Fair is sponsored by Practical Computing and Your Computer. For more information, contact Philip Kirby, Practical Computing, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS. Tel: 01-661 3127.

Price cuts

SYSTEM products from Intel are to cost less, particularly to educational users.

Development systems and peripheral units are reduced by about 10%, as are in-circuit emulators. Single board computer products are reduced by up to 25%.

Educational discounts of 15%, which have applied for some time, apply to the new prices. Larger discounts, of up to 50%, are offered to educational users of Intel's software, including the range of high level languages.

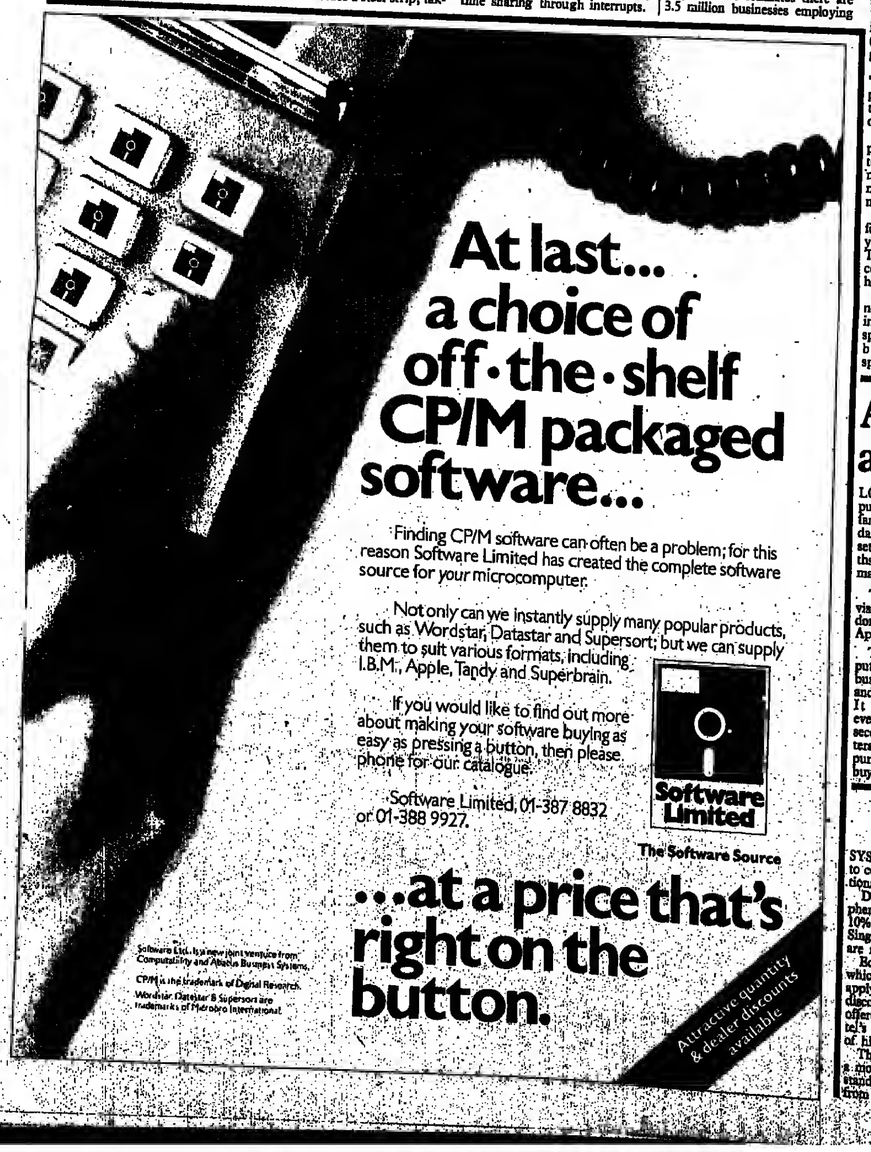
The price reductions are seen as a move to persuade new users to standardise on Intel equipment from the start.

New to UK

A FULLY boxed system from Nascom Microcomputers, the Nascom 3, is now available from dealers in the UK and Europe. Like the earlier Nascoms 1 and 2, it is based on a Z80 processor. It comes with 8K or 32K memory, expandable to 60K.

The machine is aimed at the educational and business user, and can be configured with cassettes or floppies. Operating systems available include CP/M version 2.2 and NAS-DOS, Nascom's own operating system. The machine can run on Basic, Interpreted and compiled, and Pascal.

Hardware, built in the UK, starts at £376, excluding VAT.



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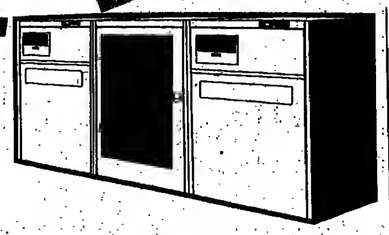

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Software house sees 600% rise in micro package sales

WELLS . . . "High rewards, even in the early stages."

THE UK packaged software industry for microcomputers is expected to grow to more than £100 million a year within the next two years.

The costa of getting into this potentially lucrative market are high, but the regards even in the early atages are also high, according to Vince Wells, managing director of software house Omicron. He predicta that Omicron will move sales this year to £300,000, a 600% increase on last year.

It also represents a turnover of £50,000 per emplnyee for Omicron's staff of six, which is no mean attainment in an industry where average turnover per employee is £22,184 (Greene and Co).

Wells emphasises that Omieron is still in the set-up phase. "We began the company two years ago with the aim of having our products ready for the market last July and August." In fact, it took Omicron six months longer than anticipated to get its product, a complete accounting aystem designed to run on any CP/M microcomputer, fully operational.

The complete package conaists of six separate accounting functions: payroll, sales ledger, purchase ledger, general ledger, order entry, and stock control, and sells for about £700.

The way the complete package was put together illuatrates the sacrifices inherent in going it alone, according tn Wells. Throughout last year neither he nor his co-founder, Ron Sandford, took any money out of the company.

From the first discussion between Wells and his team about two-and-a-half years ago, the project has absorhed the best part of £100,000, most of it put up as loans by Lloyds Bank.

Wells, Sandford and software designer Bernie Beech put in £10,000 of their own money, and each gave up several years' earnings to get the company to the point where the product was ready for the market.

Wells helieves they now have n world-beating product. He saysthet when Beech first suggested that the market for micro snftwore packages was sorely in nced of profeasionally prepared and supporied software, he and Sandfnrd immediately agreed.

All three have diffcrent backgrounds, but the common factnr et the time was that they were oll working for Rio Tintn Zinc on the financial software side.

Having decided that the producr they wanted was a complete package which would integrate all aspects of accounting, and cover the needs of small and medium sized businesses, Beech took on the task of producing the six key programs from scratch. Work really began leas than two years ago, according to Wells.

When they had the specifications clearly estahlished and programming was under way they went tn Llnyda Bank with a carefully prepared husiness plan which, Wells emphasises, concentrated on cash flow. With the initial £25,000 that Lloyds made availahle work began in earnest.

The slippage which occurred did not affect the cash flow projections, partly hecausc Wells and his twn partners had heen ultracautious in their cost and revenue projections.

He aays that when they agreed projected sales, they slashed the estimate in half. And when they finally agreed the cost nf the various elements of the project, they douhled the estimate.

And Wells and the Omicron directors epplied a rule to the package which wnuld make mosi systems analyats hlanch.

They decided from the beginning that the package to be released would be virtually fixed, and not designed for a series of conatant updstes.

This is tantamount tn seying that the first release is the last and must hy definition contain all the necessary eccounting functions that are likely to be needed.

Deplte the emphasis on caution Wells admits that the interest shown in his product, even before it was available, was extraordinary.

The company has so far done nn formsl advertising, relying almost entirely on word of mouth and Wells describes the situation six months ago, when they first started tn release details of the packege, es "a mad-house." They were rushed off their feet with enquiries and advance orders.

To support its selling effort Omicron has made two financial investments other than directly in the software itself.

Concentrating all the time on the end user, and remembering that their dealers would want a product which needed the minimum of explanation and support, Wells and his partners spent heavily on a single set of clear and attractive brochures.

Allied to this was a substantial spend on training manuals and incorporated features which make the Omicron software easy to learn and use.

The screens all come with self-help features and the user has virtually no contact with the system features which frequently make packages confusing to non-computer trained personnel.

Wells says that whee they were specifying the packages they decided to treat a small business – the sort of two- or three-person nperation which would buy their software – as a big business's emhryo.

That way Wells reckoned they got all the accounting features a lerge company would want in software that even a two-man company would need.

Wells describes Omicron as a software factory, turning out a complete product for the dealer and the end user.

He says the company is already very profitahle, but cautions that in the start-up phase it is cash flow which hrings most companies down.

Omicron got its product complete and into the marketing phase with a variation of only £1,000 on the original cash flow projections.

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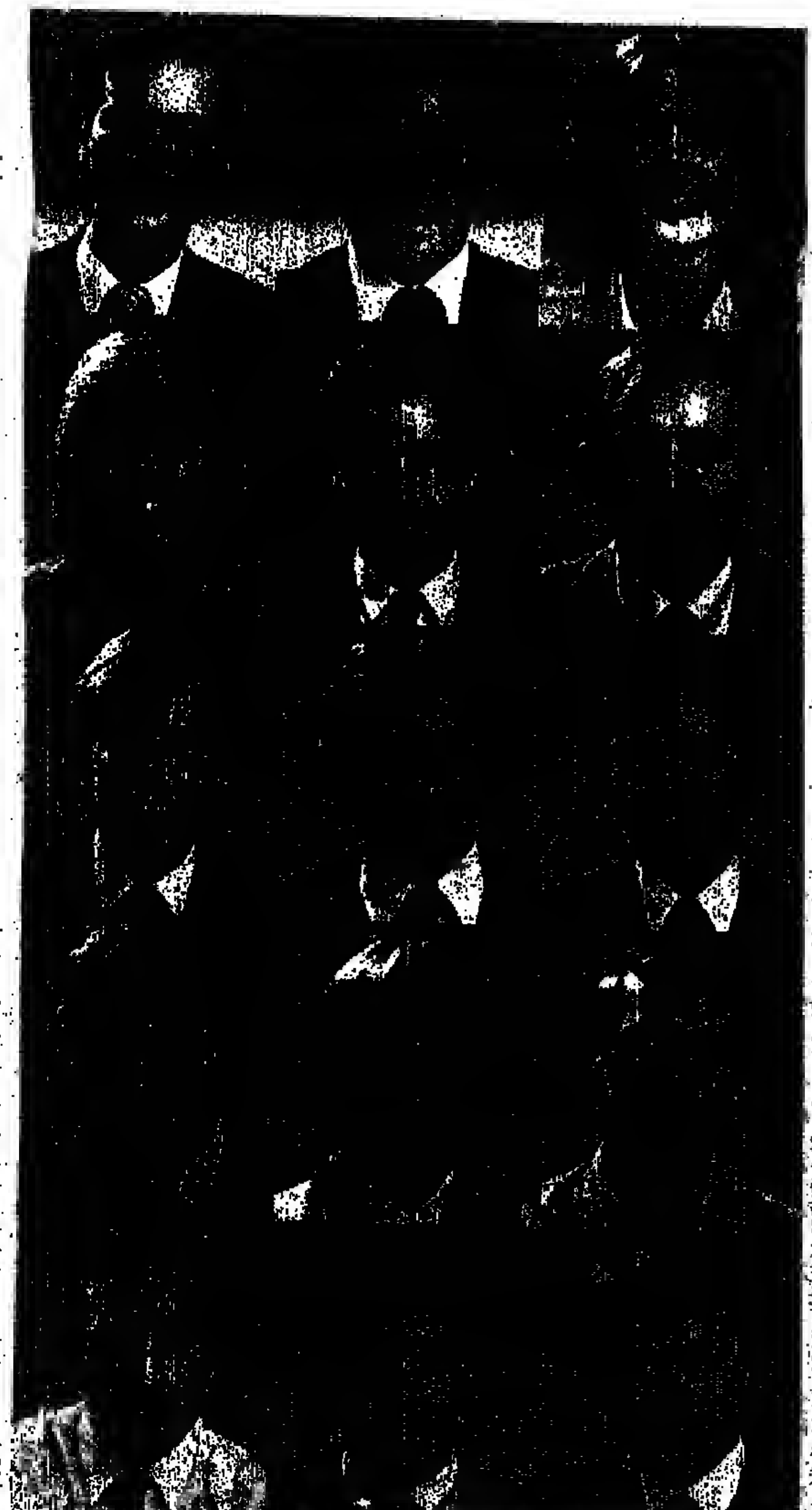

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Californian link extends BCL product range

BUSINESS Computers (Systems), one of last year'a entries to the Stock Exchange's Unlisted Securities Market, has linked up with a US company to introduce a new 16-bit computer syatem to the UK.

The financial community eagerly awaits the BCL results which are due next month. Managing director Mike Munnelly would not be drawn on the figures, hut said the company had maintained its pattern of growth.

MUNNELLY . . . "Maintained our growth pattern."

The link with California company Rexon gives BCL a major extension to its product range, according to Munnelly.

The Intel 8086-hased system will be known as the BCL 3300 in the UK and is described as a powerful multi-tasking computer which slots in at the top end nf the BCL product line.

The line still contains the Molecular series machines and Munnelly revealed that sales of the Molecular system were still high, with 11 systems delivered in December.

He described the marketplace as very tough, with a lot of companies running just to stay in the same place.

He said many companies were now looking to computers to obtain productivity gains which were no longer simply a desirable goal, but a basic element of survival.

The president of Rexon, Dr Ben Wang, attended the launch which marked the first appearance of his machine in the UK. Rexon has already sold over 200 systems in Europe, and Wang said that he was looking forward to working with BCL.

His own company, Rexon, was a relative newcomer to the computer industry, he said, hut had already made him a millionaire and would shortly be going public in the States.

Wang described the product he was offering BCL as a well-established processor, designed for businessmen by businessmen. He does not go in for pioneering.

"All you get for pioneering products in your customers' offices is arrows in the ass," he said.

by Kevin Cahill

US-Japan battle hots up in 64K chip market

THE Americans and the Japanese appear to be hesding for a critical round of bickering over Japanese pricing and dominance in the emerging 64K memory chip market.

The first of these chips are now beginning to appear in commercial computers, such as the Fujitsu-made, ICL-marketed M380.

In Japan, the Ministry of International Trade and Development has already warned Jspan's six largeat semiconductor manufacturers, Fujitsu, NEC, Hitachi, Oki, Mitsubishi and Toshiba to exercise care in exporting to the US.

MITI has expressed moat concern about the aggressive pricing attitude taken by the Japanese companies.

The US firms have been cutting prices themselves in the 16 and 64K RAM market, primarily to prop up sales in a poor area. This has driven the price of a 16K RAM down by 75% to £1 in one year.

The 16K RAM market was initiated by American companies like Mostek and Intel and the largest share worldwide was held by the Americans, with the Japanese making real inroads only in the past 18 months.

The extent of Japanese peneiration has also been obscured by weakness in the American marketplace – not felt in the Far East where burgeoning production of consumer goods absorbed most of the Japanese production.

But the 64K RAM market has been initiated both in America and internationally hy Japanese companies geared up to reverse the pattern of US domination in the earlier 16K market.

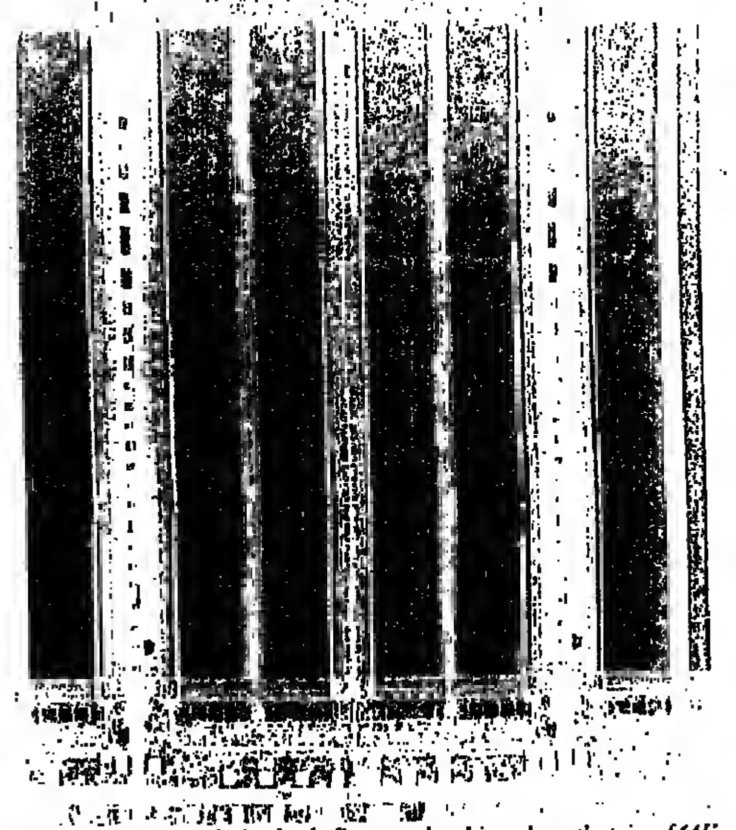
The 64K market started with pricea of about £20 for a siogle chip delivered in volume, in the middle of last year.

Already, mostly under very aggressive marketing by the Japanese, that price has been driven down to £6 to £7 and a spokesman at Intel said that the company expected tn see the price fall by 50% to about £4 by the end of the year.

In the wake of this price-cutting drive, the Japanese companies have captured just under 70% nf the world 64K market. A recent Dataquest survey, reproduced in the American business magazine Fortune, shows that Hitachi leads with 40% of the market fnllnwed by Fujitsu with 20% and Nippon Electric (NEC) with 6%.

Of the American companies, Motorola leads with 20% of the market and Texas Iostruments holds 7%. Other American companies hold 3.5%. The Fortune article, which complains of the Japanese victory in the 64K marketplace, euds by hnping that US companies might recover their dominance in future chip generations.

The magazine also shows that the Japanese have already begun sampling the 256K chip which is expected to follow the 64K, ond which few American companies can hope to deliver before 1984 – by which time the Japanese expect to be in full production.


AGGRESSIVE marketing by the Japanese has driven down the price of 64K memory chips to a few pounds.

FEENBY . . . Sales revenue up.

Profit and sales up at Hoskyns

PROFITS and sales turnover at London-based Hoskyna Group has continued the sharp upward trend of recent years. Sales revenue, 21% up on last year, passed the £20 million barrier for the first time, to reach £21.4 million.

Profits, which were badly hit in many companies laat year, rose 36% pre-tax. After charging R&D against the trading results the final profit was £1.7 million.

Jim Feeney, Hoskyns' managing director, says that company policy of recruiting high quality staff over the yeara has paid divideeds.

Two areas of Hoskyns' business have provided particularly large contributions. MAS (Modular Applicstion System) software which runs on a wide range of machines, sccounted fnr over 30% of turnover.

During 1981, Hoskyns made over £4 million in sales of its Crossroads service, which helps users to migrate from old and obsolete equipment to newer, more advanced kit.

US buyer for Nolton Comms

IN an all share transaction worth about £400,000, US-based Dynatech Corp bought out the communicadons division of the diversified Nnlton Group.

Nolton Communications is based in Cheshunt and will become part of a group with over $70 million annual sales. Dynatech is already established in Europe with manufacturing centres in Guernaey.

CW SHARES TABLE

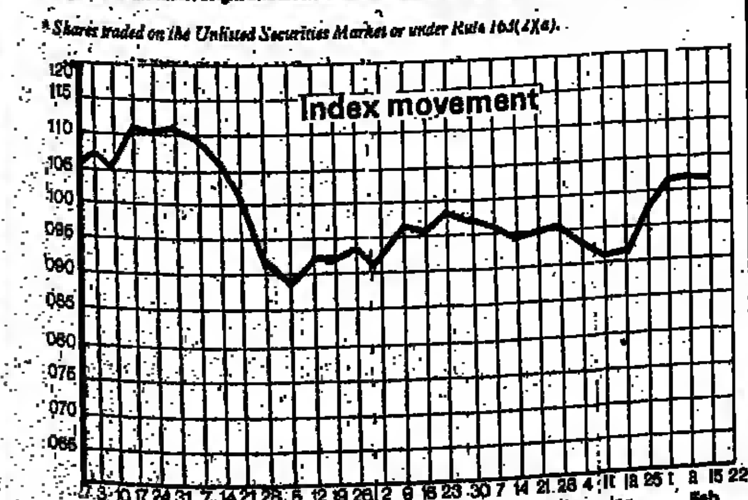
Date 18/2/82 — Index: 101.42 — Change −0.48

1982 High (pence)	1982 Low (pence)	London Stock Exchange Stock	Price (pence)	C'nge
183	151	A Comp Tech. (25p)	173	−2
174	150	BOC Int. (25p)	167	−7
23	21½	B Bev Kent (25p)	23	—
116	101	Chubb (20p)	114	−2
69	48	Cole (R.H.) (25p)	56	−1
250	220	Comp & Sys (20p)	246	−5
730	665	De La Rue (25p)	705	+5
273	236	Extel (25p)	273	+3
676	625	Ferranti (50p)	640	−30
547	502	GEC (25p)	525	−13
51	39	ICL (25p)	45	—
47	41	Kalamazoo (10p)	44	−1
250	223	Kode Int (25p)	250	+15
225	215	Memec (10p)	225	+5
132	110	Muirhead (25p)	132	+2
276	262	N'mkt ('81) ($0.05)	268	−2
£35½	£28½	Norsk Data	£28½	−£1½
310	285	Office & Elect (25p)	300	—
492	448	Philips Lamp (f10)	492	+2
370	345	Plessey (50p)	370	—
97	85	Quest Auto (10p)	95	−1
430	370	Racal Elect (25p)	370	−13
206	171	Rediffusion (25p)	206	+1
468	431	Thorn-EMI (25p)	463	−2
90	80	Utd C&T (50p)	81	—
		OTHER MARKETS*		
56	56	Bus Comp (10p)	56	—
557	450	Comp Serv (£1)	454	—
107	75	Consult (C&P) (10p)	107	+5
160	131	HMW (£1)	158	−2
85	53	Rolfe & Nolan (10p)	83	—
105	78	ScanData (10p)	95	—
185	180	Star Comp (10p)	180	—
105	105	Trident Comp (10p)	105	—
95	80	Zygal Dyn (5p)	80	—
		US Stocks ($)		
28½	26	Amdahl	27¾	+1¼

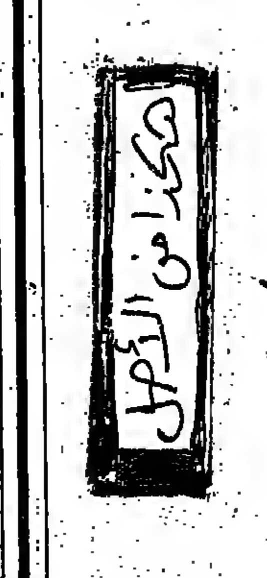
1982 High ($)	1982 Low ($)	US Stock	Price ($)	C'nge
20¾	15½	Apple Inc	19¼	+¼
25¾	23¼	Auto Data Pro	24¾	−¼
34¼	31	Burroughs	34¼	+¼
48¾	41½	Commodore	48¼	+2
13¼	10	Comp Auto	12¾	−½
[illegible]	13¼	Comp Sciences	13½	+¼
[illegible]	13	Comshare	13	−1
34[illegible]	31½	Control Data	33½	−¼
34[illegible]	32¾	Cray Research	32¾	−¾
5[illegible]	50½	Data General	50¾	−¼
4[illegible]	28¾	Datapoint	28¾	−2½
2[illegible]	19	Dataproducts	19	+1
[illegible]	60¾	Digital Equip	67½	±1¾
[illegible]	20	Elec Data Sys	20	−1
[illegible]	6¼	Gen Automation	6¾	−¼
36¾	32½	Harris	34¼	+¼
43½	39	Hewlett-Packard	41¾	+½
73¾	63	Honeywell	73¾	+1½
28½	20¾	Intel	24¾	+¼
67¾	57	IBM	62¼	+¼
[illegible]	50¾	Litton Ind	50¾	−½
[illegible]	11¼	MDS (Mohawk D)	12¼	+½
12¾	16¾	MSA (Mngmnt Sci)	16¾	−1½
22	10	Mngmnt Assist	10	−¼
10½	6¾	Modular	7¼	+½
59½	52	Motorola	53	+½
19¾	16¼	National Semi	19¾	+½
45	40½	NCR	45	+1¾
26¾	21½	Perkin-Elmer	21½	−3½
23¾	21¾	Prime	23½	+1
35¾	34¼	Raytheon	34¼	−1½
28¼	23	Signal	23	−¼
24	30	Sperry Comp	30	−1½
34½	30½	Storage Tech	32¼	+¼
27½	26	Tandem	27	+2
35	32¼	Tandy	33¾	+⅛
80¼	70¾	Texas Inst	78¼	−¼
27¼	18¼	Tymshare	18¼	−1
36¾	31¼	Wang Lab B	31½	−2
9	7½	Wyly	7½	—

Table shows the closing prices on Thursday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

** Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



"Clear the desks for System Alpha"



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Company ______

Address ______ CW

The way business is going

FOCUS

Never feel safe with human-made systems

The Eighth Law of Reliability: All real programs contain errors until proved otberwise – which is impossible.

WE must never feel 100 per cent safe with programmed systems. Like any other human-made systems they are ultimately subject to failure. We have to consider this in our total system design, and prepare the way for detecting these failures.

It is the responsibility of the systems architect (Infotect) to consider every possible system component failure and to have a satisfactory alternative ready for use. In too many environments there is no such Infotect, and programmers are left to do the best they can.

But, according to this law *their* best is not enough to prevent failure.

Perhaps as a temporary measure, those programmers who find there has not been adequate design work to prevent program failure from hurting the users, can undertake the responsibility of designing adequate protection against the programmed errors. At the very least, any programmer who accepts this law, is morally responsible for warning system users not to rely too strongly on a single program. And to "campaign" for adequate back-up measures to be designed into the system in advance.

John R. Garman, deputy chief of the Spacecraft Software Division of NASA, shared the tale of a very public software error which delayed the first Shuttle orbital flight on April 10, 1981 (ACM Software Engineering Notes, Oct, 1981). He says, "There was a bug – a very small, very improbable, very intricate, and very old mistake in the initialisation logic . . . It was the type of mistake that gives programmers and managers alike nightmares. . . . It was the kind of mistake that 'cannot happen' if one follows all the rules of good software design and implementation. It was the kind of mistake that can never be ruled out in the world of real systems development . . . Software is the easiest to change . . . but in change, it is the easiest to compromise."

He then goes on to explain the extraordinary measures taken to reduce the probability of such embarrassing errors happening live before world television audiences.

As a starter, the primary system consists of four replicate on-board computers – in case one fails, you still have a two out of three "voting" system for automatic correction of an error in one of the remaining three. But the four programs in the four computers are identical and a bug in one of them will occur in all of them.

So there is a fifth computer on board with a program developed in the same programming language, to the same requirements specifications, and with the same compiler as the primary four computers software. But it was developed by "an entirely different and remote organisation" (Rockwell International, California, as opposed to IBM Federal Systems Division, Texas, for the primary system).

The systems also used entirely different operating systems developed by the same two software suppliers.

The software bug was complex to describe – Garman used ten pages. But it was detected when one of the systems tried to monitor what the other was doing. The long list of error detection strategies which had failed to detect the problem only adds to my conviction that "operational testing" is a necessary part of highly reliable systems.

I don't mean that this applies to all programming, any more than the use of multiple computers does. But we have to destroy the widespread illusion that "software does not wear out." It hides faults just as do materials with potential faults. And it can be corrupted by the forces of change – one half of all programming activity today is maintenance – just as surely as nature corrupts materials.

Garman says it too, since the bug was a result of a maintenance change. "The lesson from the bug that I plea is directed to the academic and software engineering community: help us find ways to reliably modify software with minimum impact in time and cost. Not perfect reliability, because projects will always back off to trade for time and cost."

In my worst moments of despair, such as when considering the tens of thousands of known bugs in the operating systems of major manufacturers (ask your systems programmer), I have a consolation. Each of us has about 30,000 million bacteria in our bodies: and no more hope than Howard Hughes of getting rid of them. Fortunately nature has provided our body systems with an equivalent amount of anti-bodies and white blood cells, as well as a suitable body component redundancy: so we survive fairly well day to day.

I hope you have provided your programmed systems with as much protection against the inevitable bugs as has nature done for you.

Tom Gilb

Tom Gilb is an independent consultant, lecturer and author on computing topics.

Your life in the data stars

FOR long the champion of all matters computing, the National Computing Centre appears to have changed sides. In a promotion campaign the organisation is now declaring, "Computers do not solve problems, they create them".

The NCC does not appear to be proposing any alternative – apart perhaps from advising would-be computer users to make use of the latest British Telecom service Starline which provides a national daily horoscope. The star predictions are plotted with the aid of a computer which can chart the position of the stars to a high degree of accuracy. Whether the general assessment of the astrological influences will give prospective computer users reassurance, inspiration or despondency can only be discovered by a call to the stars.

Few DP teams will have time to consult the Starline oracle. They will be far too busy dealing with more practical and down-to-earth problems – such basic matters as freeing the jammed line printer, clearing jammed workload backlogs and coping with the jammed mass of motorbikes clustered around the installation door.

Any calls to British Telecom will be more concerned with the delivery of the long-awaited modems, extension phones, personal bleeping systems and international tariff rates, than establishing astrological datacom lines. Similarly, calls to the NCC are more likely to be requesting data on standards interfacing procedures than seeking solutions to standard problems.

A major role of DP management – one which emerges on the day of the implementation of a new system, application package or fresh operational input procedures – is distributing considerable doses of confidence and reassurance.

At a time when all about him and the installation are floundering in an unseemly sea of engineers, cables, oscilloscopes, equipment and services supplies and worry beads, it is the duty of the DPM to assure his team, his users and his senior management, that all will be right – if not on the night, at least not long after.

Large doses of contingency planning would seem to be a better form of insurance policy than a hot-line to the stars. Reciprocal arrangements with a nearby installation does much for the DPM's peace of mind and drink intake. Knowing that if the alarm bells have to be triggered, then practical help is available given time, transport and a little organisation, enables the DP management team to view almost with equanimity all manner of disasters, tribulations and misfortunes.

The DPM must never be seen to reflect care and concern, at least in public. While in the privacy of his own office, he may well rave and rant at his secretary, at the ops manager, at the field engineering manager and anyone else who happens to cross his data path, outside the sanctuary of his den the DPM must adopt a laid-back, relaxed attitude.

The "altered images" approach is important if the DPM is to keep control of the situation, and the respect of all involved. It may also help him keep his job. When the situation does improve, the DPM will be hailed as a wise and capable organiser on whom the organisation can depend.

The responsibility of DP management in any case is now extending far beyond that of data and communication technology. Spreading datacom and micro enlightenment across all levels of the organisation is the top priority.

Alan Simpson

10 YEARS AGO

From Computer Weekly of February 24, 1972 . . .

FREIGHT agents have won a reduction in their share of the annual running costs of LACES, the pioneering computerised cargo system at Heathrow Airport, and the completion of contracts is now little more than a formality . . . To permit the Yellow Pages to be more up-to-date, the Post Office will from 1973 compile them on an ICL 4-70 at Leeds . . . Data Recording Instrument Company, a member of the ICL group, is to increase its licensing arrangements, and about 150 of its technical and administrative personnel will become redundant . . . Following its takeover of a large part of the 1900 Group, Logica has acquired the business of T. C. Hudson Associates, the consultancy which has pioneered computer performance analysis in Europe .

DOWNTIME

Get your own back

ARE you the lucky recipient of personalised letters from large publishing corporations? "Dear (your name here, probably misspelt), have you ever wished that out of all the residents in (your street name here), (your town here), you had (this week's special Once-in-a-lifetime offer)? Imagine how envious (your nextdoor neighbour's who moved out two years ago name here), and (your other next door neighbour's who died in 1942, name here) will be when they see you (whatever you will be doing in/on/with/to the special offer).

And so it continues – three or four pages of gushing prose on their latest opus.

But who is to blame for all this rubbish which pours in a relentless stream through your letterbox?

Computers, that's who.

Like to get your own back on the little horrors? Then send me your suggestions on how to do it. The best entries (and probably the worst too) will be entered for our lucky prize draw.

Theatre farce

A PARTY was booked into the Theatre Monnaie in Brussels, which has adopted a computer booking system. Result: 14 were placed in the stalls, two in the circle, and two in the grand tier box which was shared with a large Belgian family, and a drunk who thought he had booked for a ballet. There were eight empty seats next to the main group in the stalls.

Chad is off to Brussels tomorrow with his interactive debugging tool.

"I see that you can't afford to sue us for breach of privacy, Mr Smith."

Every home should have one

A SHOW house to demonstrate technology that will be available for domestic use by 1987 is being built in Milton Keynes as part of Information Technology Year.

It will incorporate smoke detectors, burglar alarms, humidity controls, personal computers, videotex and other devices.

There is, however, one application significant for its absence – hot water beds.

I can tell you first-hand that sleeping on a water bed in a cold room is a nightmare.

The reason is that water has a very high specific heat, so the bed shows little response to the half-kilowatt or so of naked flesh in contact with it during the night.

So please, let's have a hot water bed in this new house.

Ring of innovation for IT82

I WAS fascinated to learn from last week's CW that a telephone with voice-operated dialling is to be one of Information Technology Year's gifts to mankind.

The thought occurred that the simple addition of a cordless headset to the design would enable me to phone my mum while I'm doing the washing-up. Or with the aid of a cunningly devised combination unit I could phone in my request to Graham Dean while I'm roller skating in the garden with my FM stereo receiver at the hip.

To think that when opposing the end of British Telecom's monopoly Post Office Engineering Union leader Bryan Stanley said he couldn't see that information technology was going to put much extra traffic on the network!

So there's a poke in the eye for those who think British Telecom should devote more effort to making the phones ring on time.

A trivial problem

"THE case where x=1 and n=0 is trivial, and will not be further discussed here." This is one of the most popular lines in mathematics textbooks – and one of the most humiliating when, as has often happened to me, the case seems far from trivial.

What infuriates us here at Computer Weekly is over-liberal use of words like "trivial", "obviously", and "clearly".

My complaint is simply that these words communicate nothing and lead people into conceptual iron curtains.

This was beautifully illustrated when a number of mathematics PhD students were set a question taken from an 11-plus examination set in 1956. Not one of the students got it right, for the trivial reason that they were told the problem was non-trivial.

What a game!

COMPUTER Weekly's Behemoth 9000 mainframe has come up with a splendid new method for boosting circulation. Hot on the heels of the national dailies' Casino and Bingo competitions, comes CW Roulette.

While the mundane tabloid games have only one winner (in theory), CW Roulette guarantees £250,000 weekly, to be shared equally between 50 million winners. This means that each competitor can rely on winning ½p.

Unfortunately, banks refuse to deal in ½ps, so we will, regrettably, and emphatically, have to keep the money ourselves.

Chad

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RCK Systems supporting approximately 600 keystations distributed over four of the Authority's 11 processing divisions are required to capture 12 million NHS prescriptions per month. Installation of the first 36 keystations will be November 1982 and installation of the remainder will be up to February 1984.

Detailed Operational Requirements available from: Computing Services Officer, Prescription Pricing Authority, Bridge House, 152 Pilgrim Street, Newcastle upon Tyne NE1 6SN.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 25, 1982

Market forces the issue

PERFORMANCE problems with IBM's 3081 model D mainframe computer do not, as might at first be imagined, reflect technical problems. Rather they stem from the highly competitive market conditions between the giant and its plug compatible rivals.

European users, especially in West Germany, are complaining of performance shortfalls which are due to the fact that the 3081D does not make use of its genuinely advanced processor. It was launched because marketing considerations required a counter to advanced products like the M380H from Hitachi.

The trouble stems from the "dyadic" processor of the 3081 and its restricted input/output facilities on the model D. What is now clear is that the machine announced by IBM in the autumn of 1980 was not the first true H-series machine at all; it was merely an extension of the 303X series using old software and new hardware.

This did not become clear until late last year when IBM announced its 3081 model K processor, which is a genuinely new generation machine.

No doubt the speculation about whether or not the initial 3081 announcement was the first of the H-series provided innocent amusement to IBM's marketing men. It was a classic example of the company manipulating its watchers, not least those of us in the media, by committing the sin of omission. The omission in this case was the failure to make clear the difference between the D and subsequent models.

It is unlikely that those users now discovering that the truth of the matter is to their disadvantage are also amused. In fact, angry 3081D users in West Germany are clubbing together to see what pressure they can bring on IBM.

IBM Germany talks glibly of adapting the computer environment to the level of performance offered by the 3081. How this can be achieved is not immediately clear, since some of the peripherals necessary, notably the high speed, high capacity and much delayed 3380 disc drive, are not yet available.

One thing is clear, though. It is that all the users which ordered and took delivery of their new machines before the 3081K and its operating system Extended Architecture (MVS/XA) was announced now face unexpected software bills if they are to obtain the full performance of their systems.

Essentially all 3081 users need three operating regimes: a version of IBM's big machine operating systems MVS which will allow them to run their existing applications software, and which has been released as MVS/370; the 3081's own MVS/XA operating system; and VM/370, the migration tool which allows the two operating systems to run on the same hardware concurrently.

Buyers of the 3081 model K fully understand that. Unfortunately, initial buyers of the 3081 model D did not.

Buying them off?

GOVERNMENT has performed the seemingly impossible feat of offering a whopping pay increase and still upsetting the unions. It has done so by exempting DP staff at installations like the Inland Revenue, the Department of Health and Social Security and the VAT centre from the guidelines covering this year's Civil Service pay award.

All civil servants are to be restricted to a 5½% maximum increase, and 65,000 can expect no rise at all. Yet DP staff are eligible for additional bonuses which could mean up to 18% more for some of them.

At the back of the collective Whitehall mind there is the belief that DP staff, who were at the forefront of the industrial action in 1981, can be bought off, thus removing the civil service unions' most effective weapon in any future conflict.

Divide and rule is a useful technique if a quick settlement to negotiations is needed. And it may well be that government DP staff will take the money and run, abandoning their clerical colleagues in the process. But it's no way to run a happy Civil Service.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by A. J. Derbyshire of Romsey, Hants, who wins £5.

It takes 30 men working day and night for a year to make as many mistakes as a computer can make in 30 seconds.

Southern Evening Echo

LETTERS

Pascal toothcomb

THE Hull University Prime V-Mode Pascal compiler (HVP) detects eight errors in the example program given in your item on Pascal errors (CW, February 11) of which six, not five, require attention in order to create a valid program. These errors are, in order of detection:

Primary –
1. No semicolon before CONST
2. Improper use of NIL
3. # should be <>
4. OUTPUT not specified in program header – occurs twice
5. + incorrect with this operand
6. Leading zero missing from REAL constant

Secondary
7. Illegal expression – due to 1, 2 and 3
8. Incompatible parameter – due to 2, 4 and 5

It is well known that errors can be classified as primary and secondary, the latter being detected as a result of confusion following the occurrence of a related primary error. Correction of all primary errors should be sufficient to clear all the secondary errors as well. It is the task of error recovery in compilers to minimise the flagging of secondary errors, and good compilers should distinguish between the two types.

However, it is often difficult to determine which of a group of related faults is the primary and which are secondary. This is illustrated by your explanation of the fourth error you list, "NIL cannot follow a sign".

Although this statement is true, it is an inaccurate description of the error. A better explanation is that "+" cannot be applied to a character. The error concerning misuse of NIL has already been detected within the CONST declaration and a global change of NIL to NILL will not solve the problem – you have to remove the sign as well.

Also you fail to point out a sixth error which is the first to be found: no semicolon before CONST. For some unspecified reason, a semicolon appears in the "corrected" version, as it should.

Finally, it is incorrect to state that the program "must" contain OUTPUT as a parameter. A perfectly valid Pascal program can be written with no reference to either INPUT or OUTPUT – although it would not be much use without some other communicators. These can be represented by any legal identifier given appropriate declarations, with quotation as the first parameter of READ, WRITELN, etc.

JOHN D. RAYNER
Research assistant
University of Hull.

Cobol discs packed

READERS may be interested in a program that reduces the requirement for disc space and eases security problems for Cobol source files held on ICL 1900 2903/4/5 and 2900 running under DME.

The program, #Coco, is marketed by CHC Software in Reading. It enables any number of Cobol source files to be held in a single library file and at the same time, compacts source lines so that use of disc space is reduced by 65%-75%.

Editing programs is performed by #Coco using the same edit commands as the normal compiler. The editing can be "in situ" or file to file. We are a 2904 site that has a heavy program development load and have found the #Coco system to be excellent. It has dramatically increased the speed, ease of editing and maintenance of our Cobol source programs. This is due to #Coco's simplicity of use and its very fast speed of processing.

A. ETHERINGTON
Operations manager
Dept of Health and Social Security
London, SE1.

OS9 not quite complete

I WAS interested to read (CW, February 4) of Microware's OS9 operating system. We have been using this system for several months, and have discovered several problems.

The system should be available in two versions, Level One for 6809 systems with up to 64 Kbytes of memory, and Level Two for larger systems. Level Two is as yet unobtainable.

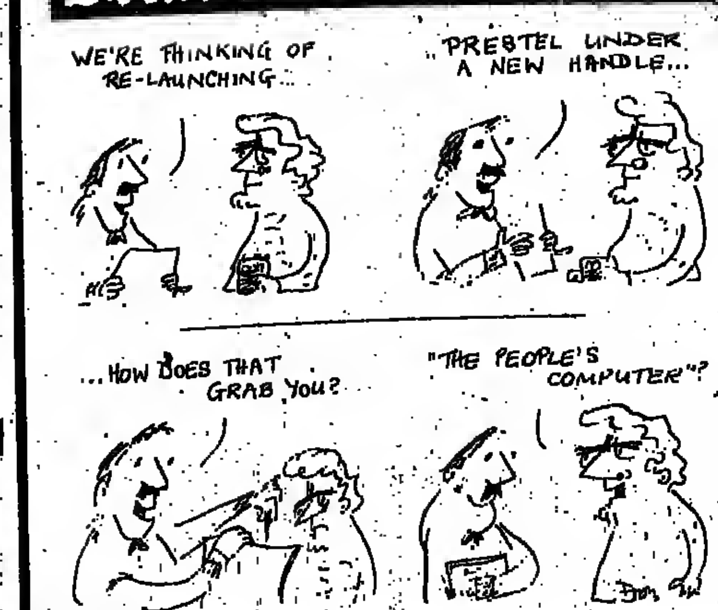
The excellent interactive word processor, with which this letter was written, is incomplete, in that it is unable to support proportionally spaced printers, even although it is advertised as having this capability. It would appear that Microware has decided that it will no longer support the current version of Stylograph, and customers must wait some unspecified time with a partially functioning version, until it releases the new version.

For the same reason it cannot supply the source for this program. The "Pascal written in-house," as Mr Kaplan puts it, may well be written in-house, but it cannot be obtained either.

In our case these shortcomings are not serious but I feel that Positron, which I see has decided on OS9 for its machines, would be well advised to wait for the finished system to appear and be fully tested.

DAVID COWAN
Dept of Applied Physics
Durham University.

Liveware File — by Don



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Spoon-feeding programmers on portable pie in the sky

by Philip Hunter

System portability gets more difficult the more thot thought is put into it.

PROGRAM portability is like Einstein's General Theory of Relativity. While many people know something about it, few know exactly what it is.

Certainly portability is no easy matter. For one thing, it creates a dilemma for designers of computer languages – how to offer the most powerful facilities while encouraging programmers to write code that will transfer easily between machines?

Let's have an example:

Algol allows the following code:

```
for x:= -2 step 0.1 until 2 do
r:= r+1
```

In theory this loop should execute 41 timea, hut on some compilers it will only execute 40 times. This is because real numbers are not held with complete accuracy by compilers. When we expect x to attain the value 2, it might in fact be 2.000000001 and so cause control to pass out of the loop one cycle too soon.

In my rather banal example, one could equally well have written:

```
for x:= -20 step 1 until 20 do
```

But there are cases where using decimal numbers as step parameters makes what is being done clearer.

Basic also allows decimal numbers as loop parameters, hut then Basic allows all sorts of odd constructions. Since it is rarely the same from one machine to the next, Basic is only recognised as a language on account of being just about the easiest way of learning to communicate with a computer.

No other serioua language allows decimal numhers as loop parameters, and as is shown by my example, their use at once reduces portability almost to nfl.

There are three considerations to portability:

1. Computer word size and arithmetic.
2. Operating system.
3. Language.

My example enters the first of these categories, because it has nothing to do with the operating system and would execute nn ony machine supporting Algol. But it could produce different results nn different compilers, ond clenrly the first prerequisite of portahility is that consistent answers should be achieved.

The successful implemcntation of software relies on the hospitolity of the host operating system, and this is completely manufacturer dependent. It is true thot there are now attempts to define operating systems and environments, but there will for somc time be features peculiar to each manufacturer.

Total portability is just pie in

> **"The first prerequisite is that consistent answers be achieved"**

the sky anyway, and there will always be some work necessary to move programs from one machine to another, even if it's just changing a joh contrnl atatement.

In the case of languages, the question is: Should portability be thrust down the programmer's throat by eliminating everything non-standard? Or should there be a host of non-standord options available for ephemeral programs which have no hope of seeing daylight on a different machine?

I favour the latter approach, if only hecouse it is the least insulting to programmers. People write machine independent code who surely know what is and is not specific to their own developers' machine. To suggest that they have to be thus spoon-fed is an insufferable slight!

Where a language has been implemented with non-standard features, the compiler should distinguish between two error types: those that abuse the standard, and those that abuse the compiler's self.

It will then at least be possible to produce programs guaranteed to compile on any machine that supports the standard. It will also be possihle to use any non-standard features for local programs such as mickey-mouse drawing routines.

This has already been done by some companies which have written high-level language software for implementation on a variety of mainframes. The machine body of the code is in this case written in the company's own machine indepeodent bastardization of the language, which is then compiled by a preprocessor into code that will run on the host machine.

Clearly a separate preprocessor has to be written for each machine to allow for such differences as wurd size and arithmetic precision, and the local operating system.

This preprocessor will be the only machine dependent part of the system and will flag any statement that cannot be converted into standard object code on the host machine.

Don't just sit there, Do Nothing

THERE is one simple command lacking from all existing computer languages – the command DO NOTHING. For the sake of structure something must be done about it.

This request came from a correspondent in New Zealand, who pointed out that most languages have commands that do nothing without admitting to it.

A good structured program should make clear exactly what it is doing, and often the existing inert commands lead to ambiguity.

Cobol, for example, has the command EXIT, which is in fact just a cosmetic nicety. It does nothing at all.

It sounds as if EXIT causes control to pass from the current program module into a higher level module. But it only does this when placed at the end of module when control would pass out anyway. Let's face it, the word is confusing.

Cobol has another "do nothing" command: the full stop.

A Cobol programmer wishing to send out an invoice only when there has been a sale to a customer would probably phrase it like this:

```
IF (there is already sale for this
customer)
    send out on invoice.
    get next customer
```

Notice the full stop after the word "invoice". It it was missing, the command "get next customer" would be executed only if there had been a salc. As it Is, it will always be executed.

The full stop is certainly an economical way of saying nothing, but prone, shall we say, to oversight and omission.

Fortran has the closest to a DO NOTHING, with its CONTINUE statement. But it was not designed for this purpose. The original definition of Fortran had anything but good structure in mind.

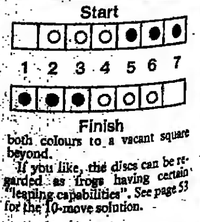
No; Fortran's CONTINUE was provided to bring a little clarity to tortuous chunks of code by indicating the end of iterative DO loops, and also specifying branch points. Because its use is not mandatory, it is doubtful if overall confusion is reduced by its presence.

Structuralists urge that every IF should have an ELSE associated with it. It is only logical that it should be possihle to write ELSE NOTHING.

PUZZLER

IN this moving-counter problem, you are asked to reverse the placings of three white discs and three black discs on a seven-square grid, using only 10 moves and taking advantage of the vacant cell in order to manoeuvre. The grid is numbered 1 to 7 to assist the would-be solver.

Each "move" must consist of (a) shifting a disc one square left or right; (b) jumping over a single immediately adjacent disc of either colour to a vacant square beyond; or (c) jumping over two immediately adjacent discs of either or both colours to a vacant square beyond.



If you like, the discs can be regarded as frogs having certain "leaping capabilities". See page 53 for the 10-move solution.

The Specialist Event for Specialist Computer Purchasers

Peripherals '82 will feature the very latest in terminals, VDUs, printers, plotters, memory products, graphic displays, tape and disc drives – an exhibition for anyone with purchasing responsibility in the computer peripherals field.
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March 31 – April 2, 1982
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West Centre Hotel, Lillie Road, London SW6

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Post to: The Exhibition Manager, Peripherals '82, IPC Exhibitions Ltd, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ.

OP SPOT

'Sparks' shocker takes the biscuit

A NATIONAL biscuit manufacturer has an online terminal in a warehouse which is rented from a national transport undertaking and the installation is regarded with some awe by the local biscuit staff. Great care is taken to ensure that planned power supply interruptions do not occur in working hours.

But last September a crane owned by the transport undertaking had an unexpected and illuminating meeting with some overhead power lines, and blew one of the phase fuses – though not the one which supplied our innocent little system with nourishment.

Being a complex system with a number of three-phase motors, the volts did not merely die, but

DISASTER

danced around merrily for a nanosecond or two, upsetting the poor terminal.

The manager called in electricians to rectify the fault, and expressed concern that, although the lighting and power were rapidly restored, three vital pieces of equipment, were knocked out: the fridge holding milk for the workers' tea, the computer and, most importantly, the PA system.

Luckily, one of the electricians had some experience of amplifier faults, quickly restored the fuses, and began soothing troubled brows with music.

But could the computer be brought back into action? Without it, orders would have to be handwritten and telephoned to head office at great expense.

A check revealed that the processor could be reset, and the modem made operable with a little help over the phone from the BT engineers, but the printer had definitely died despite its fuse protection.

"Wot, no computer?" wailed the clerk, visualising a mass of written returns (and it was Friday afternoon).

"Don't panic," interjected the engineer, growing more confident with each device repaired. "Surely you can do the transactions without hard copy, get them printed at head office and posted to you on Monday."

And so it was that all was put back in order – except the fridge which was left DIP (defrosting in peace). And the clerk began clearing the hacklog of orders.

On Monday morning, the backlog was still occupying the clerk's full attendon, when a further fault in the power supply was found. The electrician was duly summoned and, without so much as a by-your-leave, threw the switch.

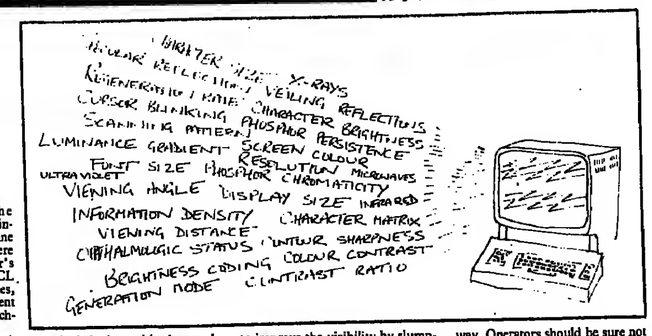
Bells, sirens, and the cries of panicking managers filled the air. The electrician quickly threw the switch again, hoping that no one would notice. The clerk was discovered sobbing quietly over his keyboard, having just lost the last screenful of orders.

Moral: First, don't let rustic electricians, to whom the difference between 240 and 250 volts is the amount of brightness coming out of the bulbs, and on is the opposite of off, with none of those confusing grey areas in between, loose on vital pieces of equipment.

Second, at least one person at the remote location should know what to do if the system crashes. On this occasion, the site engineer was 160 miles away on a job in Glasgow, and was unable to get to the site until Tuesday . . . . week. The BT engineer was also out on another job, and the whole restart operation involved about two hours of telephone calls simply to find out what to do. So get yourself some procedures written.

A 'glaring' case for VDU worker-control

by Andrew Thomas



FOLLOWING a recent Op Spot report on the health aspects of working with new technology several people have asked me what can be done about improving conditions. As luck would have it, I have received a pamphlet* published by the New York Committee for Occupational Safety and Health (NYCOSH), titled "Health Protection for Operators of VDTs/CRTs." It contains useful advice for those worried by the effect on them of VDU-based office and computer equipment.

In the US, the National Institute for Occupational Safety and Health (NIOSH) has started research which may lead to legislation on manufacturing, maintenance and operation standards for VDUs. But NYCOSH maintains that it is the users of VDUs, the people at greatest risk, who have the most important role in protecting both their jobs and their health.

The problems listed by NYCOSH match those cited in the Alfred Marks survey reported on this page two weeks ago: Soreness, redness, stinging, itching, irritation, and general discomfort of the eyes; pains in the neck and back; dull headaches; seeing blurred or double images; dizziness and nausea; and problems with spectacles or contact lenses.

When the eyes are required to focus on close objects, such as VDU screens, the ciliary muscles must compress the lenses.

Therefore, long periods spent working in this condition will tire the eyes. As a rule, operators should have a 15-minute break

> **"What is needed is willingness on the part of workers to stick up for their right to a healthful workplace"**

hourly, or 30 minutes every two hours, to rest their eyes by viewing at greater distances. Two hours should be the absolute maximum for uninterrupted work at a VDU.

This kind of control is only necessary where the working environment is already unsuitable.

Glare can also create eye-strain, coming from windows, shiny work surfaces, large expanses of paperwork, and lighting that is either too harsh or incorrectly placed. The reflections of this light on the screen make it difficult to see the characters displayed.

Some of the methods for reducing glare suggested in the NYCOSH publication are the use of blinds or awnings on windows, sensible positioning of machines and light fittings, the use of indirect lighting, the reduction of overall lighting levels without making it difficult to read printed material, possibly giving the workers themselves control.

Some of the other remedies for eliminating glare include the removal of one fluorescent tube where they are installed in pairs (I used this one myself), and pieces of cardboard fixed above the video screen to keep the light off it.

While these home-made solutions can be surprisingly effective, they do not provide a real alternative to curing the problem at source, by relocating the equipment or improving the environment.

A stumbling block often encountered in this area is that of management failing to realise the extent of the problem. An example of this affected me directly while I was working as a shift leader on an ICL 1900.

The machine room was too small to accommodate the hardware upgrade needed to maintain service levels on the online system. So more disc drives were installed, and the operator's console moved in fi them in. ICL 1900s use teletypes as consoles, and these have a inosparent perspex cover over the print mechanism.

With the console in its new position, one of the (diffused) overhead lights was reflected directly into the console operators' eyes. If the teletype cover was left open to eliminate the glare, it proved impossible to hear anyone who phoned the machine room to check on progress. The management said that it was impossible to move the console, and did nothing.

The situation continued for another five years until the installation was closed.

If all the operators had protested as a single body, rather than making the occasional personal complaint, perhaps something would have been done.

Another kind of glare that can cause problems results from the installation of videos with their backs to a window. The background light from the great outdoors is much brighter than the inslpld little cathode ray tube, but the pupils of the user's eyes react to the total light entering them, thus making the cbaracters on the screen difficult to see.

And if the hapless user attempts to improve the visibility by slumping down in his chair, he will leave himself open to back and neck problems.

According to NYCOSH, the idcal VDU has a detached keyboard, a swivelling and tilting screen, and has either a dark green screen with light green or yellow characters, or white characters nn a black background.

Health problems beyond mere eye-strain may be caused by sitting for long periods on poorly designed seats. Varicose veins and even piles can be caused in this way. Operators should be sure not to sit with the spine curved as a result of badly designed desks and chairs.

The report states, "What is needed is knowledge about equipment design and its health effects, concern on the part of employers, and willingness on the part of workers to stick up for their rights to a healthful workplace and to stick together to get it."

* **Health Protection for Operators of VDTs/CRTs**, The New York Committee for Occupational Safety and Health. $1 (individuals), $3 (companies). 32 Union Square, New York, NY10003.

Big news for everyone selling computer products and services to the Middle East

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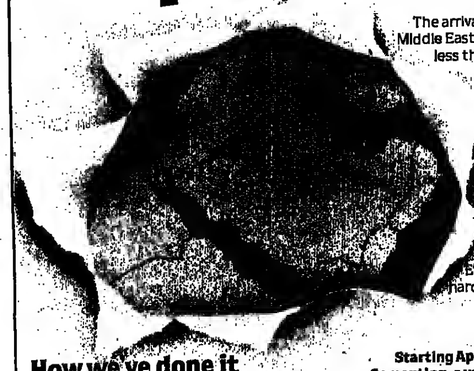

The arrival of IPC's unique new publication, Middle East Computing, means nothing less than that.

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MD appointed at Pye Telecommunications

PYE Telecommunications has named James Foord, hitherto general manager of ITT's data systems division, as its new managing director. He replaces Michael O'Loughlin, who has joined Fluoride Europe as its European chairman.

Foord's career in the computer industry has spanned 22 years, starting in 1960 at IBM. Six years later he joined Rolls Royce as computer operations manager, eventually taking responsibility for all management services, operational research, computing and systems.

Following a spell as director of marketing support at Honeywell, Foord was appointed managing director of Potter Data Products, the peripheral equipment supplier.

Foord, who holds an honours degree in mathematics from the University of London, takes up his post with Pye at the beginning of next month.

Fastest fingers in the West probably belong to Leila Evans (left) of Greenfield, and Dixon Computer Services who, for the second year running, is Rediffusion's Operator of the Year. She clocked up 27,072 net accurate characters on hour on the finals of the UK Data Entry Competition. The score, which won Evans a cheque for £250, was computed after deducting 100 characters for every error. Runner-up, both from Spectrum Computer Services, were Joyce Pool, who came third and received a radio cassette player and Anita Wolsencroft whose prize for second place was a portable colour television. Prizes were presented by Rediffusion's managing director Michael Aldrich.

MCA elects chairman

THE Management Consultants Association, MCA, has appointed A. T. Kearney's managing director Philip Banks as its chairman.

Banks, who is also a vice-president of A. T. Kearney's parent company, is an economics graduate of London University. He started in management consultancy in 1963 with Norcross and Partners, later acquired by Kearney. His career has included the Army and politics – he stood as a Parliamentary candidate for the Conservative Party in the 1974 General Election.

Robin Monre of Atkins Planning has been appointed MCA's vice-chairman. MCA was formed in 1956 and now has 25 member firms.

■ **Richard Champ** and **Brian Davies** have joined Prime Computer as sales executives. Champ will operate in Prime's government district. Davies will work in Prime's special industries group, based at Feltham.

■ **Tony Manning** has been appointed field sales director at Semiconductor Specialists (UK). He has been with the company since 1973 serving most recently as national sales manager at the group's headquarters in Chicago, US.

■ **John Goodman**, formerly a director of Computer Resale Brokers International has joined Kendal computer Group as group marketing director. He also becomes managing director at the group's newly-formed subsidiary Kendal Computer Brokers.

More support for PPL

PACKAGE Programs has added support staff and sales executives to the team at its recently-formed subsidiary, PPL-MMS.

Ray Jonea, formerly a product manager with Olivetti, has joined as client support manager. Client support consultants are **Paul Johnson**, formerly with Serck Heat Transfer in Birmingham and **Ken MacKenzie**, who was previously with Rank Xerox.

Gordon Tebbutt and **John Rapson** have been appointed sales executives. Tebbutt, who will be responsible for sales in North London and the Northern Home Counties, was previously with PMSL. Rapson's sales area is the City of London. He has spent the last two years with ICL and Basic Computing.

■ **John Hoath** has been named group technical manager at Gordon and Gotch. He joined the company in 1978 to head the development team engaged in extending the group's services to stockbrokers. **Dick Hennessey**, who has controlled the bureau's mainframe operations since 1975, becomes group operations manager. Heading the sales and marketing team specialising in bespoke turnkey systems is **Bill Blenkinsop**, who has been appointed manager, specialised systems. He has been with the company since 1975, when he joined the sales team.

Joining Peripheral Hardware as managing director is John Shenton, former national accounts executive with cable and Wireless. After qualifying as an electronics engineer he worked in Canada for eight years. In 1971 he joined Data 100 as a product support engineer and eventually became manager of the company's support and service operation in Switzerland.

DIARY

MARCH 2

Voice response and other specialist terminal applications. IDPM Birmingham branch. Wheatsheaf Hotel, Coventry Road, Sheldon, Birmingham. 7.30.

MARCH 3

Liberalised- British telecomms. IDPM Central London branch. Altergo Software, Imperial House, 15-19 Kingsway, London. 6.00.

Thinking about the future. IDPM Scotsish branch. Edinburgh University, Students Association, 60, The Pleasance. 7.30.

MARCH 9

Power station protection systems. IBBTB. SSEB, 75 Waterloo Street, Glasgow. 7.00.

Liquid heating systems IBBTE. Room SG28, University of Aston, Birmingbam. 7.30.

An evening with the robots, talk and demonstration. BCS Coventry branch. Physics lecture theatre, Warwick University, Coventry. 7.30.

Disaster recovery. BCS Croydon branch. Maple Room, Fairfield Halls, Croydon. 7.15.

Use of computers in lexicography. BCS Harlow branch. Longmans, Burnt Mill, Harlow. Details from S. Robbins on 01-600 5666 ext 3508.

A rapid applicstloo development system. BCS West Herts branch. The Pavilion, Hamel Hampstead. 7.45. Details from Gary Freeman on (0234) 65121.

MARCH 10

Security and closed circuit TV systems. IBETE. New Hackwood Hotel, 122 Widmoro Road, Broxley, Kent. 7.30.

Iuformation sources. BCS Belfast branch. Department of Computor Science, QUB, Botanic Gardens, Belfast. 2.30.

Where do you put your coffee? BCS Displays Group. Details from R. A. Earnshaw on (0532) 31751.

Office of the future. BCS Humberside branch. Grange Park Hotel, Willerby. 7.30.

Micro mouse, by David Woodfield, Buropean micro mouse champion. BCS North London branch. West Lodge Park Hotel, London. 8.00.

Microelectronics in general practice. BCS Newcastle branch. Ellisoo Building, Newcastle Polytechnic. 6.00.

Micros in small busioesses. BCS Sussex branch. Sussex House, Civic Way, Burgess Hill. 7.30.

CONFERENCES

■ **THE University of Birmingham** is staging its tenth annual conference on Computer Applications in Archaeology from March 26-27, at the Edgbaston complex. Papers will cover systems for data collection, analysis and retrieval; computer aided publication; graphics and mathematical modelling. There will also be a presentation on 30 years of computer archaeology, by Dr Irwin Scollar of the Rheinisches Landes-museum in Bonn. Applications to Ms S Laflin, CAA82, The Computer Centre, University of Birmingham, Birmingham B15 2TT. Tel: (021) 472 1301. Accommodation is available near the Birmingham campus.

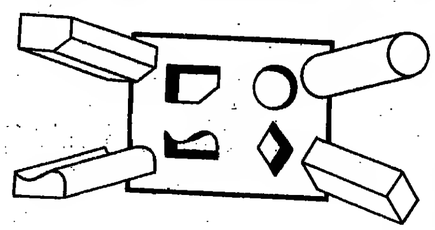
■ **RELATIONAL** database pioneers Ted Codd and Chris Date will give a two-day tutorial in London for Persamion Infotech from March 30-31. Codd will include his Turing lecture, Relational Database: a Practical Foundation for Productivity. Codd is a Fellow of IBM, and inventor of the relational model. Date is author of An Introduction to Database Systems, a copy of which is included in tutorial documentation. Further information is available from Roger Barnes on Maidenhead (0628) 39101, ext 200.

■ **THOSB** wishing to unravel some of of the mysteries of Prestel may be enlightened by a South **Bank Polytechnic** seminar to be held on April 6. It will cover the application of Prestel in the academic, learning and training environment and will discuss the problems and possibilities of the medium from the point of view of British Telecom and an "information provider." It will also explain how to get information on to Prestel. There will be demonstrations of retrieval and editing and a critical appraisal and evaluation of Prestel databases and index methods. Details from John Akeroyd on 01-928 8989, ext 2385.

■ **AIMING** to help the businessman make the most of the electronic revolution is Micro City, an exhibition of computers, business systems and communications equipment, to be held at the British Exhibition Complex from May 11-13. It is organised by Tomorrow's World Exhibitions, and about 100 companies will take part including IBM, Hewlett-Packard, Data General, Apple, ACT and 3M. The event has official support from Information Technology Minister Kenneth Baker. Further information from the organiser at 9 Park Place, Clifton, Bristol. Tel: Bristol 29215617/8.

Now available as a book £8 post and packing free

DATA ANALYSIS



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No need for mystique in buying computers

Managing with Computers. Terry Rowan. Pan Books, 1982. £2.50 (paperback).

THE cheapness, and therefore popularity of microcomputing has brought forth a proliferation of paperback books advising businessmen on how to choose and install a machioe.

This book, however, sets itself the more formidable task of advising on minicomputers and mainframes as well as micros, something imposaible to cover adequately in some 300 pages.

Terry Rowan, himself a computer coosultant, sets about his subject methodically and logically, but with an apparently pessimistic view of the outcome of computer projects, presumably born of personal experience. He seems to have a low opinion of DP staff in general, depicting them in various sections as being scruffy, unproductive and "rewarded excessively" for what they do.

At the managerial level, he dwells on the lack of understanding between the DP department and the rest of the company, and the managerial inabilities of people who have come from a technical background.

Admittedly, this book is ont intended to be read by programmers or DP managers, but I cannot see them recommending it as an unbiased source of information. Feminists also will probably be affronted at much of the content: managers are all assumed to be "he" in the real life examples quoted, and the only woman to appear is a character called Nellie from the accounts department.

On the positive side, Rowan's descriptioos of the steps to be taken in setting up a computer system are thorough and he gives a realistic picture of what the average company can expect to gain from it. He takes the view that investment in a computer is no different from buying any other expensive piece of equipment, a fact often overlooked by management bemused by the mysique surrounding it.

Despite a wealth of information and advice on computers, the reader is left with an uneasy feeling that once the illusions have been shattered they may not be such a wonderful thing to have after all. Perhaps a more appropriate title for this book might have been Managing Without Computers.

Maggie McLening

No prior knowledge assumed

Speaking Pascal. Kenneth A. Bowen. Hayden Book Company Inc, Rochelle Park, New Jersey. 236pp.

THE aptness of the title of this beginner's manual can be seen when one examines the section-headings and chapter-names. The emphasis is on two-way conversation and relevance to everyday problems, examples being chosen from situations easily understood by ordinary people.

No previous knowledge of programming is assumed and new points are introduced slowly to enable the student to assimilate and consolidate his learning.

In Talking to Computers the author introduces the resder to a simple program and explains the relationship between programmer, computer and I/O devices.

In the section called Simple Conversations, Money Talk shows Pascal being used for calculations using whole numbers and the following chapter covers more complex problems involving real numbers, characters and Boolean variables.

In Controlling the Conversation, Repetitive Conversations deals with both limited and unlimited repetitions, a subject which is taken further in the following chapter, where more involved conditions and multiple alternatives are explored. A study of input, output and files completes the section.

The Sophisticated Conversations section has chapters on arrays, procedures and functions, and records and there is a final conclusion on methodology, which recommends the top-down approach to programming. There are exercises to test understanding but unfortunately no answers are supplied.

The clear layout of the book together with index and appendices makes this manual easy to use for reference. The headings and illustrations add to the text a humour which in no way detracts from its continuity.

Rosemary Shepheard

Love of mathematics makes book compelling

Recursive Functions in Computer Theory. Rozsa Peter. Ellis Horwood, a division of John Wiley & Sons. £17.50.

THOSE interested in the fundamental mathematical theory of computatioo will find Peter's book gives a compelling and thorough treatment. The application of recursiveness to binary arithmetic, flowcharts and language definition is covered clearly. Especially interesting for me was a clear exposition, illustrated with a simple example, of how to convert flowcharts into decision tables.

Nevertheless, I cannot avoid the conclusion that the author possesses a deep love of pure mathematics and clearly believes that we all share her algebraic literacy, although a claim is made in the preface that the book assumes no previous knowledge.

While it is true that no complex mathematics is embarked upon, the arguments are frequently based on somewhat confusing rows of symbols, subscripts and superscripts. Without a thorough grounding in mathematics, much mental energy would be expended in wading through the many pages of dazzling mathematical jargon.

Which is a pity, because the ideas are always logically developed and it will be a wiser reader who has completed and digested the material of the book.

This well organised, informative volume should find its way into the library of the computer connoisseur.

Philip Hunter

Delving into DBMS

Evaluating Data Base Management System, by Judy M. King, Van Nostrand Reinhold, £18.65. 275 pp.

THIS book is divided into three sections. The first deals with fundamental issues. Does a given organisation need a database, and if so, what is needed? The second section then covers the various aspects of DBMS software architecture, while the final part is devoted to a discussion of the role of database in various user environments.

In the opening chapters, the suthor describes how to evaluate the need for a database and how to choose an appropriate evaluation team. The factors with which this team should aim to be cognisant include the organisation's data (its origin, flow and significance), its present/future application requirements and how the impact of change should be buffered when a move towards DBMS is initiated. Each of these topics is discussed in considerable depth.

The author goes on to delve more deeply into the technical aspects of DBMS. Individual chapters are devoted to physical data organisation, data models, data integrity and security.

Each topic is covered in sufficieot detail to get the message across without over-burdening the reader with too much technical matter, and the treatment is comprehensive and to the point.

The third part of the book covers a number of subjects that are, collectively, most relevant to DBMS users. Two of the more important aspects are cost/benefit anelysis and criteria/methodologies to aid the selection of an appropriate system.

There is an interesting chapter on user interfaces to DBMS and the book concludes with a section that discusses possible future trends: distributed processing, distributed data, hardware assists and self-defining data.

Philip Barker

Year Book challenged

Computing Marketplace. Edited by BIS/Pedder Associates Ltd. Gower Publishing Co. Ltd. in association with The Computing Services Association. pp 501. £35.

UNTIL recently, the DP industry has had to rub along with only a bare minimum of reference and trade books.

The Computer User's Year Book diligently produces an annual comprehensive listing of all computing matters and The International Software Directory, an increasingly valuable guide to ready-made application packages.

Challengers, however, are now emerging, if not exactly thick, at least fast, to plug potential gaps in the installation bookcase.

Dr Adrian Stokes of St Thomas's Hospital has recently produced a diagnostic guide, The Concise Encyclopaedia of Computer Terminology, which no management report writer can afford to be without. Meanwhile, about to zap into the book lists is a much needed User's Guide to Communications Equipment.

In the meantime, a new publication, Computer Marketplace, has been introduced, backed by such weighty bodies as BIS/Pedder and the CSA.

As the first time reader will quickly discover, the book concentrates on the companies which provide services, rather than the services themselves. As a result, discovering the local supplier of Apples or Pets is not as speedy as it would be from a listing of products.

But the publishers have thoughtfully provided instructions on how to use the book which certainly speeds information retrieval.

The directory is divided up into ten major sections, most with accompanying features, covering such areas as bureaux, consultants, training, recruitment, finance and maintenance.

Products and services apart, the book does yield some interesting data. The troubled CAP-CPF Group, for instance, still employs 1,000 people, a total almost equalled by the bustling Data Logic and F International.

Similarly strong is Securicor, listed as having 23,000 professional staff involved in computer service group "X". Speedy research establishes that Brand "X" relates to Miscellaneous Computer Related Services – IBM, with its 15,000 UK listing, had better watch out.

Provided the reader can master the basic sort mode needed to get the full benefit from the book, Computer Marketplace certainly deserves its place on the installation reference shelves. It will be of considerable benefit and interest to both established and new entrants to the computer market scene.

Alan Simpson

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SOFTWARE MONTH

Claire Gooding identifies the demand for greater productivity as the driving force behind software development

The current that is taking the industry to maturity

ANYONE in the software business – and quite a few outside it – recognises that developments in software cannot be summed up in a few pages.

However, one theme has emerged strongly: the need for increased productivity.

Programmers and big DP departments being such an introverted lot in general, this is usually taken to mean programmer productivity – getting more code per programmer, more oomph per program.

This is all very well, and the trend towards buying packages rather than tailored systems, writing re-usable modules, and using program-writing aids is all that it should be.

But beneath the issues that have hit the headlines there has been a slower, stronger current taking the software industry towards maturity. The advent of the microcomputer as everyman's tool has meant that there is a new, more demanding race of user whose presumption that software can (a) do almost any job, and (b) can do it properly, has begun to rub off on the more docile end-users of yesteryear.

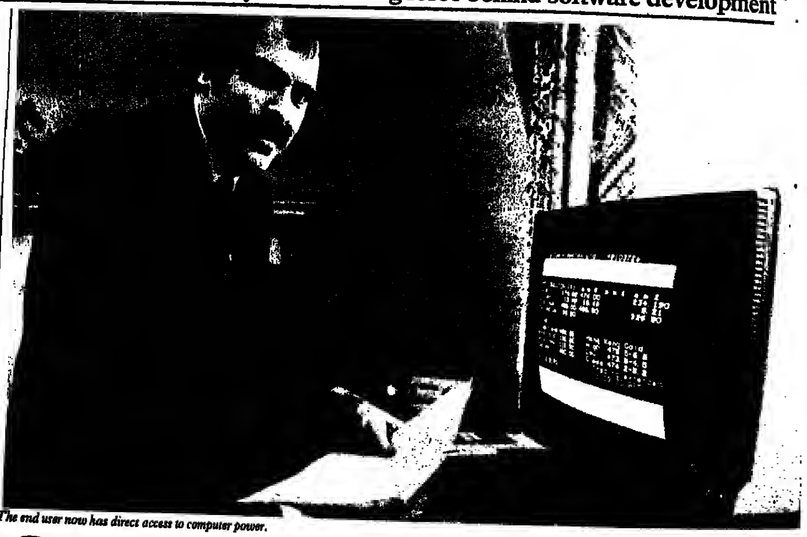
End users who would once put up with a six-month queue to get their application written now expect to be given other means – a terminal on the desk, high level query language, or a report writer.

DP departments have tended to forget that they are not an end in themselves, and the habit of many is to dissociate themselves from the actual product of their company, be it biscuits or motor engines.

So the power of computers, which could do so much to improve the way biscuits and motor engines are produced, has been directed mostly towards the non-profit-making parts of companies, mainly the accounting, stocktaking, and "housekeeping".

Consequently the hands-on revolution has surfaced in microcomputing, leading to UDI departmental decisions, and a whole new range of home-grown applications written with the attitude that they must be easy to use. The same ideals have now taken a firm hold in the mainframe market.

This trend towards easy-to-use tools means that everyone has the chance to get in on the computer act, be it financial modelling or sorting out dental records.



The end user now has direct access to computer power.

Dennis is just one of a new breed of computer users.

Computer power is on the move – to the end user

OVER the past decade there has been an almost continuous wail from data processing departments about their inability to recruit enough skilled staff to develop new systems and maintain old ones.

Of late, that chorus has been more muted, partly because of the harsh economic climate. But the start of a fundamental shift in responsibility for data processing from the central department to the end user should also be taken into account.

Last year, some £45 million worth of personal computer hardware was sold to this country, the vast majority to those white collar workers who would in the past have depended on experts to do their computing.

The process of distributing computer power has taken place because the economics of silicon engineering have been reducing hardware prices at a steady 25% a year, and because only when computing power can be put into the hands of the end user can real gains in productivity take place.

Management information systems were one of the outstanding failures of the early Seventies. The idea was fine: give the end user – that is the manager – all the reports, analyses and statistics that he needs and he cannot help but become more effective, more productive. In practice it did not work. Trolley loads of indecipherable computer print-out gathered dust in the corners of offices.

What had gone wrong was that the data processing department was in charge. It was the computer experts who told the manager what he could have, and not knowing any better he went along with them. Now with cleaner hardware and the end user at the console we are going to have another stab at it.

The difference is that this time software is going to play a crucial part in the scheme of things and systems will have to prove that they can justify the money spent on them.

There is still some way to go. At the British launch of the Apple III microcomputer last autumn, one company executive said that a novice needed at least 20 hours of instruction before he could get something useful from the machine. By the end of the decade that learning time would be reduced to 20 minutes, he said.

Productivity, as Ray Buckton and Sir Peter Parker know, is a tricky question. But there can be little doubt that in the office, particularly, savings can be made. Figures produced by the Civil Service last year show that it costs £3.28 to type a letter in Central London.

Sending that letter between two addresses in the capital adds another £3 to costs. In all, the average London executive consumes well over £1,500 worth of filing, photocopying, and clerical resources each year.

Since the war, office productivity has scarcely increased. Most of the automation that has been in use – typewriters, telephones and so on – relies on 100-year-old technologies. Computing has barely begun to scratch the surface. As one director put it recently, 95% of computing is directed towards solving accounting problems.

Word processing software has already showed that paper can be produced more quickly, but according to Dennis Jarrett, in his book The Electronic Office, "the real pay-offs in office automation will be in improving the timeliness and the quality of management decisions. The clerical functions are there solely to support management and the decision taking process."

That is why word processing is seen by many people as the stepping-stone towards a terminal capable of handling a wide range of office functions. Although the software to handle these functions is still in its infancy, products for planning and modelling applications – essentially mathematical problems – have begun to make their mark.

There are now over 20 different companies selling versions of Pert, software designed for critical path analysis and first used by the US Navy to oversee the Polaris nuclear missile programme.

Pert trimmed two years off the time it took to complete the project. Like most modelling programs, Pert (it stands for Project Evaluation and Review Technique) takes the user through two stages. First he specifies the dependencies and constraints of the model and then he enters the data from which a network is drawn. The network is an outline of the way the project will proceed.

Microcomputer versions of Pert are now available for £200 – Codified Computer Systems, for example, sells a package at this price. Computerline of Weybridge, Surrey, has a more sophisticated version of Pert called Micropert. At £1,750 for a four-module package, Micropert will run on the TRS 80, Rair Black Box, Superbrain and Cromemco systems.

Although the construction industry (where projects tend to be complicated and time critical) is the classic user of critical path analysis, virtually any activity that involves a large number of operations carried in the right sequence can make use of Pert. Applications range from planning a factory to launching a new project.

Financial planning systems, particularly when applied to the budgeting process, are another example of the new type of management information system. Setting budgets by hand for an operation of any size normally only leaves time for about one-and-a-half attempts at getting it right. Computerised planning can increase the number of trial budgets to five.

Operating a financial planning system usually involves specifying some logic, for example that price times sales equals turnover, and inputting base data that is multiplied to fill a matrix plotting variables against time.

The great advantage of computerised financial planning is that elements of the model can be changed and the entire budget recomputed. The so-called "What if" questioning.

Financial planning systems allow organisations to hone their budgets through a process of interaction between the managers actually responsible for achieving the targets, and those at the top who have wider objectives.

Originally not much more than expensive time sharing products, financial planning systems are now

> **A key technology in bringing power into the hands of the users will be viewdata**

making their way on to small machines at a rate of knots.

Spurred on by the success of Visicalc – conservative estimates put sales of the product at over 100,000 in three years – the market is crammed with "calc" packages. Comshare has even brought out a small machine package that can work in tandem with its mainframe bureau computers.

The success of financial planning software illustrates the need to produce software for well-defined applications. Program generators are another example of this requirement. The interest in program generators sparked off by publicity surrounding DJ "Al" Systems' The Last One is immense.

Although it seems unlikely that the novice will be able to write his own code without having some knowledge of data analysis and high-level language, for some time yet, the generators promise to increase systems house productivity greatly.

For example, US-based Relational Systems has produced a £180 package called Personal Programmer which will produce subroutines, handle data from five files at a time and, according to its UK distributor Pearl International (UK), does not require any knowledge of the C-Basic or M-Basic languages in which it codes.

"No code appears on the screen," says Pearl's director Tony Frowd. "All the user has to do is learn how to become a systems analyst."

Pearl International, an offshoot of a dentistry practice run by computer buff Chris Hibbert, claims that a sales ledger to handle dealer invoicing, return of products, analysis of which dealer sold what and pro forma invoices took about two and a half hours to put together using Personal Programmer.

When Personal Programmer is launched in the UK in April, Pearl International expects it to appeal to the end user rather than the systems house looking to improve on programming time.

One of the key technologies in bringing computer power into the hands of users, particularly in large-scale service operations, will be viewdata. Although Prestel has been slow in getting off the ground, British Telecom has shown the computer industry how to put £700 terminals on someone's desk and allow that terminal to communicate simply with a central host.

Prestel's problems, basically its lack of appeal to the domestic user, spring from the original concept of the technology as a means of dishing out information that people had previously got from books, guides and brochures. More alert business men have grasped that viewdata is best used for transactional processing.

That is why BL, which plans to equip 1,700 dealers with Philips' terminals by the end of the year, is expanding viewdata to allow dealers both to inspect stock records so that they can trace the whereabouts of particular models, and to deal directly with the company. They will be able to place orders over the system.

Viewdata makes it possible for a car dealer wishing to arrange hire purchase for a customer to key in the customer's particulars, get credit clearance and a hard copy of the information.

The thrust of viewdata software has been to make the end user's task more easy. Some systems reformat data from ordinary computer files on the fly, turning a conventional database into a viewdata lookalike.

GEC has a widget called Selective Field Update on its bureau service, which automatically moves the cursor to the appropriate place on the screen for the user to make an entry. Security locks and improved methods of searching a viewdata database – keyboard search instead of the Prestel branching tree approach – have also been devised by the private systems suppliers.

But without doubt, one of the biggest advances in viewdata has been brought about by British Telecom's decision to introduce Gateway – the ability to connect private computers into the Prestel network. This opens the way for transaction processing by the domestic user. In future he will be able to book his holiday direct, manipulate his bank account and so on.

Most of the end user applications discussed so far have involved processing business information. But following Japan's announcement of its Fifth Generation Computer project, there has been renewed interest in the 20-year-old art of artificial intelligence and its use in expert or knowledge systems.

This month saw the launch of the first general purpose commercial expert system, Sage. Its designer, SPL, will be selling a £2,000 micro version.

Expert systems like SPL's are akin to modelling programs, in that they involve the specification of rules by an expert (in the company of a so-called domain engineer) and the interpretation of those rules by the system, for the benefit of another expert user.

Alex d'Agapeyeff, chairman of the British Computer Society's expert systems committee, is convinced that expert systems can be applied in the commercial world. He believes that the systems could be harnessed to the task of updating accounts ledgers in line with legislation or changing company practices.

"There is a danger," he said, "that expert systems will be seen as only useful for profound things. They could be applied to making a universal product. There are a large number of file processing products, all are different. Accounts files could be made more like ledgers. Some of the side-effects of artificial intelligence do ring a lot of bells on where software is already going."

The management information system of the future may well include the expertise of past managers, immortalised in the rules applied by an expert system, improving the "quality and timeliness of management decisions".

New software requirement

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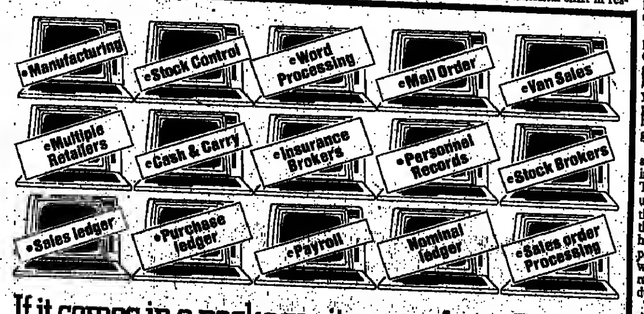

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Real time industry gets the message

by Claire Gnoding

REAL time software has been one of the most neglected areas of computing, fated to rest in the hands of a small circle, partly because the commercial world is so keen on general ledgers and the like that it has not woken up to the potential in real time applications.

In this field quality, reliability, and the "man:machine" interface which gives users the ultimate control, are more essential than in any other – because the user can be in charge of a nuclear power station or a moving ship, for example.

The real time industry faces productivity problems as well, because the ends to which it turns its skills are varied and highly specialised.

A recent report from the National Economic Development Office criticised the lack of co-operation in the British real time software industry.

Given more high-level tools, which would prevent the re-invention of the wheel on every project, the industry would be far more efficient.

There are now signs that the message has been taken to heart.

Systems houses such as SPL and CAP are putting their heads together over real time projects, particularly with the US Department of Defence's new language Ada.

The most positive move towards making real time systems more productive and less labour-intensive has come from Dynamic Software Services, the Hawker-Siddeley subsidiary.

For some time the company has been seeking to use and supply "re-usable" modules of real time software as part of its service.

This technique cuts down on the amount of code for applications like graphics, which have often needed some particular slant for a specific project.

It also allows DSS to spend more time making its software easy to use for end users, who might be anything from sailors to mining engineers.

BANCROFT . . . concentrating on the man:machine interface.

"We think it's important to concentrate on the man:machine interface," said DSS Divisional Manager John Bancroft.

"The packaged approach makes as much sense in this business as it does in conventional DP, and the trend towards giving power to end users is just the same."

The micro spectre – ushered in with a modest whimper

A SPECTRE is haunting today's DP manager: the spectre of microcomputers.

It is clear that micros will be used in a big way to perform tasks traditionally serviced by multi-million pound mainframes – and equally clear that at the moment this is all talk and little is actually being done.

How is it, then, that micros will be ushered into the DP world? The contention of this piece is that they will make their entry with the modest whimper of dumb terminal emulation rather than the glamorous bang of a sophisticated local area network, with $300 software packages the cause of it all.

Ferris is a consultant in the UK and US providing marketing and planning advice to computer companies, particularly in the area of software.

SOFTSELL

In regard to micros, there are powerful and coherent reasons for DP conservatism. Although the hardware is often sufficiently powerful, the software available usually isn't, and timely support is generally non-existent.

However, reflection on what is happening today suggests that ordinary DP departments will have micros forced upon them whether they like it or not: independently of whether they feel they understand the technology or are ready to use it.

For the average DP department to espouse micros, two things must first take place. Initially, knowledge of what they do and how they work has to become available within the DP department itself. DPers need to feel familiar with micros, in other words.

Secondly, a track record of successful micro implementations needs to be established by pioneering DP departments, from whose experience the DP world in general can benefit without running unacceptably high business risks.

How will all this take place? To answer it is necessary to understand how personal computers are being used today in corporations.

Corporate non-DP staff are buying personal computers for a small number of simple, standalone applications. In particular, middle managers are buying micros because they want to run electronic spread sheet programs such as Visicalc, or word processing programs such as Wordstar. The most frequent users of the former are marketing and financial staff, for sales and financial projections and reports.

Word processing is used in a variety of departments, and the primary justification typically lies in the development of documents over a period, or for personalised mass-mailings.

In short, corporate staff are buying micros because they want to run a single, specific program costing a few hundred pounds.

The cost justification of the hardware/software combination is usually easy, and since the expenditure generally falls within the manager's discretionary budget, there is no difficulty in purchasing from a local personal computer retailer.

Clearly, at this stage DP participation is not necessary, and system acquisition and implementation normally takes place entirely without their involvement.

Once the system has been in operation for some time, two things tend to happen which will, I believe, be the main causes of acceptance of micros by DP staff. First, personal computer users want to use their machines as dumb terminals; and second, they ask for programming help.

The Dumb Terminal Syndrome. One of the first things that corporate users of personal computers want to do is to access the corporate database, and the portfolio of applications programs that have been developed over the years by DP staff.

For example, a bank vice-president who has been using Visicalc to predict his next year's loan business will find, once he has become familiar with his system's capabilities, that he would like to be able to access actual client records to test various hunches and hypotheses. Currently, if he wants to do this he probably has to go to some distant, crowded room where there are various mainframe terminals.

So the personal computer user turns to his DP department, and asks to be able to connect his machine directly to the mainframe. This is where DP department *have* to get involved.

Most micros are quite capable of emulating common terminals, such as the IBM 3270, or simple asynchronous TTYs, and supporting packages are readily available. DP has to install the emulation software in the micro, and at the mainframe end it has to assign log-on privileges and define the TP environment (such as available programs and menus, data access, and so on).

Physical connection must also take place, whether by dial-up modems, leased lines, or direct wiring.

True, often DP departments will be able to resist such user demands, often with valid excuses. However, the facts are that this very simple form of networking presents no real technical problems, and DPers claiming that it does are seriously endangering their credibility. Further, word will get around that it can be done, and sometimes senior management will make the requests: these users cannot be turned away so easily.

One way and another, a lot of non-DP personal computer users are going to have their systems connected as dumb terminals to the corporate mainframe, and DP is going to have to do the work.

The Lend-Me-A-Programmer Syndrome.

The other main cause of micro acceptance among DP staff will come, I believe, from requests for programming assistance. Again, senior managers using personal computers are key: they will have a strong teodency to

> **A lot of personal computer users will want their systems connected to the corporate mainframe, and DP will have to do the work**

ask DP to "lend me a programmer for a few days" to implement some extra facility. When the request comes from senior management, it will often be impractical not to respond.

Some of the features implemented in this way will not have any bearing on the general DP environment – for example, if the personal computer user wants to know how to make one of his standalone packages do some statistical analysis, or how to change a report heading. But some of the requests will provide the drive for more sophisticated forms of micro networking over and above the dumb terminal working.

For example, users will want to download corporate data for later use locally in spread sheet analysis, or to save having to enter customer names and address for a mass-mailing. Gradually, user requests will encourage increasingly knowledgeable and confident DPers to take advantage of the new technology in more and more sophisticated ways.

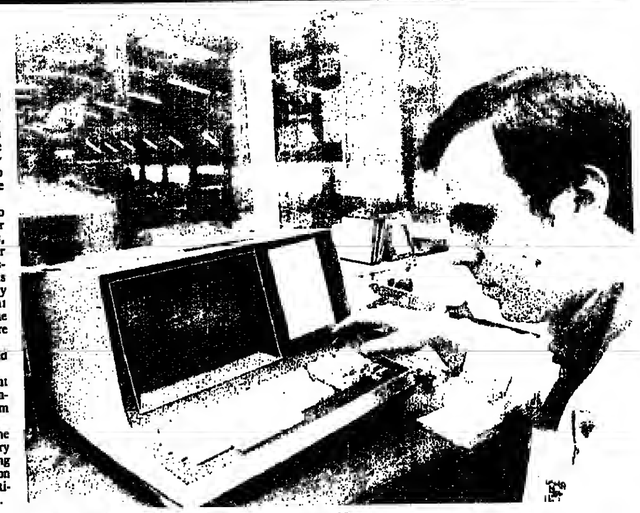
Thus the news for the DP world appears to be both good and bad.

The bad news is that insistent users are going to thrust new, unproven technology upon them whether they like it or not.

The good news is that the change is likely to be evolutionary rather than revolutionary, starting with simple terminal emulation rather than unfamiliar and relatively complex local area networks.

David Ferris

Micros in the DP world



More non-DP staff are using personal computers to run specific programs.

ROUND UP

RECENT events in the software industry you may have missed:

■ The real time software industry, one of the areas in which Britain likes to think highly of itself, was given a warning that it should pull itself together in a critical report from the National Economic Development Office. The report found fault with the "enormous fragmentation of effort" in the UK real time industry, and recommended strict adherence to standards and the development of reusable high-level software tools.

■ Microcomputer giant Commodore Business Machines plans to release a machine which will run existing software and applications originally written for other machines. The plug-in circuitry will be supported by the new Commodore 64, which, priced at $1,000 could trigger off a price war as hardware profitability is trimmed further back to compete.

■ The much-discussed programmer shortage seems to be easing, with a report from Reward Regional Surveys confirming the trend. The report indicates that pay increases for programmers have dropped from 6% to 2% over the last six months, with similar, though not so sharp, reductions in salaries for analysts.

■ Software products house Micro Focus launched two debugging tools which will allow users to see their Cobol programs, new and old, come to life before their eyes. The Animator and Slideshow both concentrate on the interactive aspect of Micro Focus' Compact Interactive Standard CIS Cobol compiler. Slideshow allows users to create end user interfaces such as graphs and menus from existing or new applications, and Animator is a "live" trace debugger which follows the code down the screen as it executes.

■ IBM users had the chance to save on present maintenance costs by 25% when IBM changed the way it licenses its software products. The change means that most large users with multiple sites will be able to centralise, getting one copy of updates and distributing it within the organisation, rather than duplicating effort and costs by having changes implemented by IBM at every site.

SOFTWARE MONTH

COMPUTER WEEKLY'S SOFTWARE SUPPLEMENT

Computer Weekly was the first general computer journal to give software its own space when Software File was introduced for weekly news reports. Now the time has come to expand the coverage further.

Edited by our Software Editor Claire Gnoding, Software Month will devote its whole coverage to one subject each month. The topics are listed below.

But included each month will be a news round-up, highlighting important events of the past month, and a column by consultant David Ferris on the increasingly important business side of software and the companies which market it.

PROGRAMME FOR 1982

February 25: Annual software review
March 18: Networking software
April 22: Database
May 13: Financial and project planning
June 10: DEC systems
July 15: Payroll packages
August 12: Integrated Office software
September 9: Program productivity – program generators and high-level languages
October 7: Word processing
November 4: City software
December 2: CAD/CAM and scientific software

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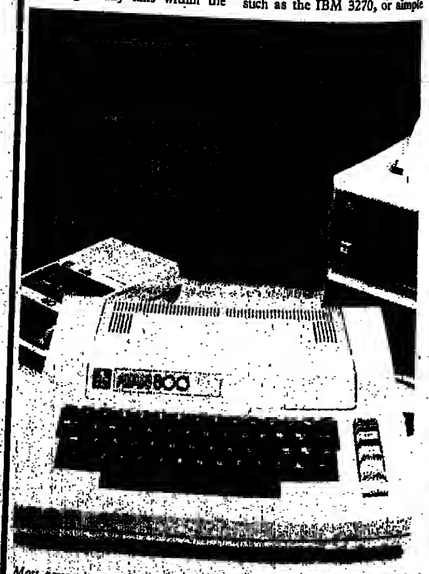

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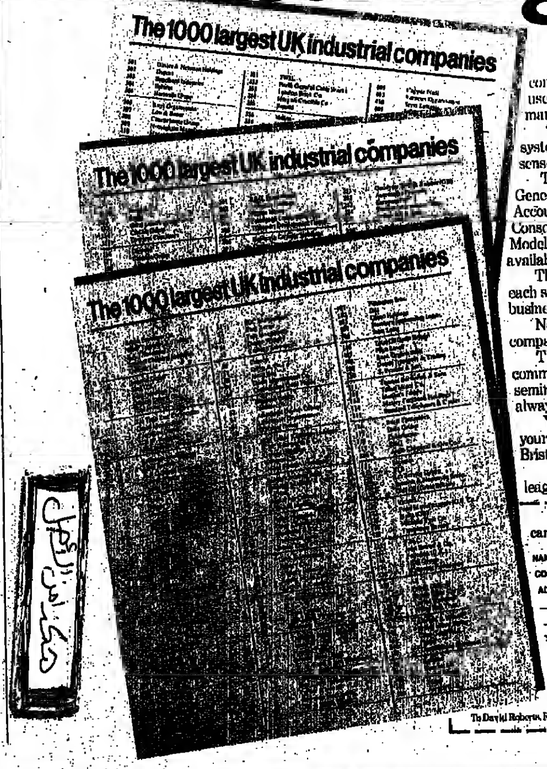

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Word and data processor combined

Alveronic's DECmate 278, a combined word and data processing system.

A COMBINED word processor and data processing system is now available from Hull-based Alveronic Computer Systems.

The system is based on the DEC PDP-8 commercial minicomputer and can provide word processor functions and sales/purchase/nominal ledger, invoicing/stock control and payroll programs.

It costs from £9,300 including a letter-quality printer, 20 diskettes and 12 months' maintenance. A comparable DEC word processor system would cost about £7,000 with no data processing capability and with installation and maintenance at additional cost, says Alveronic.

For smaller firms, the significant computing power contained in many of today's word processing systems will never be fully stretched, wasting both money and a potentially useful tool. By combining the functions of word processor and data processing system on the same intelligent hardware, a much more cost-effective solution becomes available, according to the company.

About 100 systems have already been installed by Alveronic.

A variety of system configurations are available, all based on DEC word processor packages. The Alveronic DECmate 278 commercial system is a text processing device using a menu-driven editor to create and update documents stored on floppy diskette.

Up to 200 documents of various lengths or up to 125 pages (at about 2,000 characters per page) can be stored on a single floppy diskette. Simultaneous editing and printing capabilities allow a user to prepare and edit reports through several drafts.

For larger or more demanding applications, Alveronic can supply the DEC type-300 system, layered on the DEC CTS-300 operating system.

Alveronic Computer Systems (CW), Ryde Avenue, Hull, North Humberside. Tel: (0482) 445461.

Hytec adds to ICL compatible range

OXFORD-based Hytec Microsystems has introduced two more products in its range of ICL compatible systems – the H5000 hard disc subsystem and the Hytec CO3 communications protocol. Both are designed to upgrade the capabilities of the existing product range.

The H5000 is for use with Hytec's H4000 or H4500 terminals. Both terminals are used with IVL mainframes as interactive workstations and can operate as standalone units. The H5000 is CP/M compatible and contains up to 20 Mbytes of storage.

The H5000 functions as a local data collection device for use with either of the two terminals when being used as standalone units, or a remote data collection device when either terminal is used as an interactive workstation with the mainframe.

The bus interface provides 200,000 characters per second data transfer, offering a transfer rate 20 times faster than that achieved when using floppy discs, says Hytec. This enables the H5000 to be shared by up to four H4000s, H4500s or a mixture of the two. Additionally, up to four H5000 disc units can be shared by up to 16 terminals to provide extended online storage.

The Hytec CO3 – or full extended basic mode – can function in exactly the same way as its ICL counterpart, claims Hytec. The three most widely used communications protocols are in basic mode (CO1), extended basic mode (CO2) and full extended basic mode (CO3).

Although the Hytec CO3 Communications Protocol has the same capabilities as its ICL counterpart, its advantages in terms of price and flexibility lie with its use on either of the Hytec terminals.

Hytec Microsystems (CW), 1 West Way, Oxford OX2 0JB. Tel: (0865) 726644/5.

Analogic extends its array processors

FOLLOWING the launch of the AP400 and AP490 array processors, Analogic has introduced two new data acquisition modules to extend the processors' scope.

The ADC410-02 and 06 provide interfaces to a range of analogue transducers. They are independent of the host computer and relieve the host of acquisition tasks, allowing it to perform other operations while the data is being gathered. Applications include spectrum analysis, audio and sonar signal processing, seismic and vibration signal processing and in various telecommunications contexts.

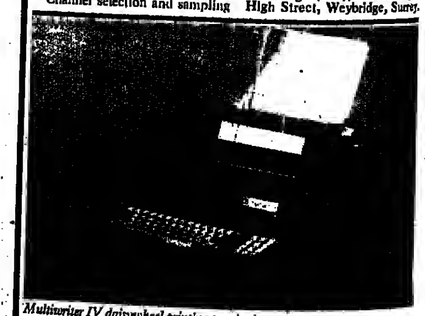
The 02 module multiplexes up to eight differential input channels. The signal is sampled at up to 115 kHz and converted to 12-bit digital form.

Channel selection and sampling rate are controlled by software in the processors themselves. A ramp test signal is provided which enables the diagnostic programs – supplied with the unit – to check the module independently of the sensor equipment.

The 06 module can sample two channels simultaneously at up to 50 kHz per channel and convert each channel to digital form with a resolution of 16 bits. The interface to the processor and the control of channel selection and sampling rate are exactly the same as with the 02 module. A ramp test signal is also provided, as are the necessary diagnostic programs.

Both modules are mounted in 19-inch racks with self-contained power supplies.

Analogic (CW), The Centre, 46 High Street, Weybridge, Surrey.



Multiwriter IV daisywheel printing terminal

Printer with WP functions

A 50cps daisywheel printing terminal, the Multiwriter IV, which combines printing with word processing functions is available from Teleprinter Equipment.

Proportional spacing, centering, right margin justification, bold printing, shadow printing, underlining and page titles are among its word processing functions.

As well as taking some of the load off the CPU, many of these "terminal programmable" features can be switched on and off by the operator without affecting any CPU software embedded commands says Teleprinter Equipment.

The keyboard features a standard qwerty layout and numeric keypad. A series of LEDs located along the top of the keyboard indicates the terminal's status.

The unit is supplied with a serial RS232C interface.

Teleprinter Equipment (CW), Akeman Street, Tring, Herts HP23 6AJ. Tel: (044282) 5551/9.

ABS minis are 50% smaller

THE MX Series, ABS Computers' commercial minicomputer range, has been repackaged to allow for a 50% reduction in space.

The MX Series is a commercial system, designed primarily for business applications, and with the cost of office space at a premium in the major conglomerates, the reduction in physical size is seen to be an advantage by ABS. The machine will take up less space than a typist's desk and so can fit unobtrusively in a corner of the office.

The reduction in size is pertinent throughout the MX Series.

ABS Computers (CW), Multibus House, Station Approach, Woking, Surrey.

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The market

Compec North attracted 4,271 top quality visitors – from an impressive range of organisations, including: Banking, finance and insurance; telecommunications, electronics and engineering; construction, metallurgy and chemicals; printing, research and large retail groups; large manufacturing companies, the major nationalised industries, national and local government establishments; police and the armed forces.

The success

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To complement the Tandem sales force they are seeking to recruit a number of young, dynamic systems salesmen to take full advantage of their growth rate and standing within the market.

The successful candidates will have a proven track record within mini/mainframe sales and the ability to communicate at the highest level. Previous experience in selling overseas would be an advantage, but is not essential.

Ring Paul Pearce on 01-836 8411 (24 hours) or (0432) 57483 (weekends).

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Sales People Ltd
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(8834)

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Based from South London offices — £18,000 + car

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Previous experience must have been gained in selling into the peripheral marketplace and you will have the ability to successfully manage and split into large accounts. You will be responsible for the total account management of the distributors, to manage and increase turnover whilst maintaining the impetus of the clients salesforce and marketing activity.

Ring Paul Pearce on 01-836 8411 (24 hours) or (0432) 57483 (weekends).

Sales People Ltd
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Customer Service Engineers

Computer Graphics

£7,500 - £10,000 plus bonus, plus car

Our Client is a subsidiary of one of Holland's largest Public Companies, marketing and supporting a range of high and medium resolution Graphics systems, such as Genisco and Vector General.

In pursuit of a policy of vigorous expansion, a UK operation has recently been established with its Head Office located in a pleasant Northamptonshire market town. It is likely that Customer Service Engineers will work from home in most cases, although relocation assistance is available where necessary.

In order to support a broad customer base, our Client now requires two additional Customer Service Engineers to support and service a wide range of Computer Graphics systems.

The Ideal Candidates will have a good electronics background and a number of years experience of working to component level on Graphics systems. Previous experience of interfacing with DEC hardware and a mix of both analogue and digital experience would be advantageous.

In addition to an attractive starting salary, other benefits will include full use of a Volkswagen Passat Estate car, free BUPA and a contributory pension scheme including free life assurance.

If you can offer sound experience in fault finding on Computer Graphics systems and enjoy working in a professional environment, contact Ian Payne on 021-236 3781 (24 hour answering service) or alternatively write to him at the Birmingham address.

Initial interviews will be carried out at your nearest SCR regional office during early March.

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. . . inception to implementation

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between 5 p.m.-9 p.m.

THE HOTEL INTERCONTINENTAL
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Alternatively telephone us on 01-245 3208 today Thursday 25th February between 9 a.m. and 7.30 p.m., or from tomorrow during normal office hours. If you prefer, write with full details to Ronnie Johnston, Esso Petroleum Company Limited, Esso House, Victoria Street, London SW1.

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Contact Terry Harvey

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Contact Tim Bridges

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Contact Terry Harvey

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Contact Tim Bridges

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Contact Terry Harvey

Commercial Comms.

London/S.Coast £8K-£11K

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Contact Tim Bridges

DEC Scientific

Beds. £8K to £11K

The working environment, the company and its products all rate A.1. with this client. Experienced RSX11/MacroII programmers will enjoy working on applications and systems for computer controlled analysis and measuring instruments. There are opportunities in special systems and standard product development. A physics degree would be useful. Some international travel.

Contact Terry Harvey

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Contact Tim Bridges

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Contact Terry Harvey

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- **Fiscal Year '81 record results:**
  Worldwide $1 billion orders
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  UK £25.9 million orders
  £21 million revenues
- **Product Range:**
  Wangwriter and Shared Logic **Word Processing Systems.** Multi-function **Office Information Systems (OIS)** and **Office Automation Systems (Alliance).** Stand-alone and Multi-screen small **Business Computer Systems.** The range of powerful 16 and 32 Bit **VS Computer Systems.** WangNet Broadband Communications Networking System.
- Wang Laboratories Inc – Over 300 offices in 78 countries 16 wholly owned subsidiaries and 63 distributor companies worldwide.

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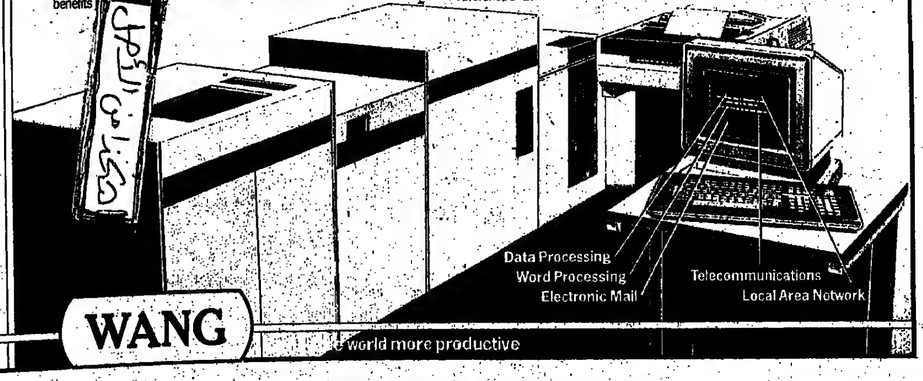

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6001

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J002

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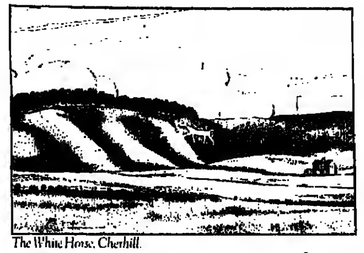
The historic river Avon.

Or a visit to Castle Combe, one of the most beautiful villages in England, just to appreciate its quaint charm.

A better quality of living, but one which can be all too easily lost in an effort to be at the forefront of technological development, at any cost.

The perfect compromise arrives in Chippenham in June of this year, when the highly successful Wavin Plastics Limited arrive at their brand new offices at the foot of the Cotswolds.



The White Horse, Cherhill.

Wavin Plastics are already highly successful exponents of DP technology — with a 4Mb IBM 4341, IBM 5280s, micros and the company fully committed to the development of office automation.

Software? VM, DOS/VSE, DL1, CICS, VOLLIE, VSAM, with programming in COBOL and RPGII.

The business challenges come from the extensive range of systems, both existing and planned, across the manufacturing, marketing and distribution sides of the company, as well as the development of integrated office systems.

As a result of the move of Wavin's headquarters in June, they need to recruit people now, for the following positions (experience sought in brackets):

England's prettiest village — Castle Combe.

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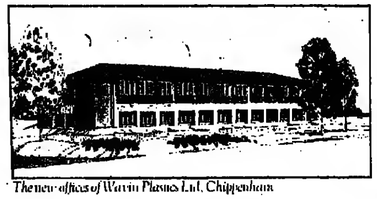

The new offices of Wavin Plastics Ltd, Chippenham.

We will also be looking for Operations staff.

If you are potentially interested in any of the above positions, you will obviously want to learn more — to learn about the jobs in detail, and what it would be like working for Wavin Plastics Limited; to find out about living in one of the most beautiful and accessible areas in the country.

The space here would not do the information justice. Ring immediately, or post the coupon, and you will receive by return all that you would reasonably want to know. Act immediately. You owe it to yourself.

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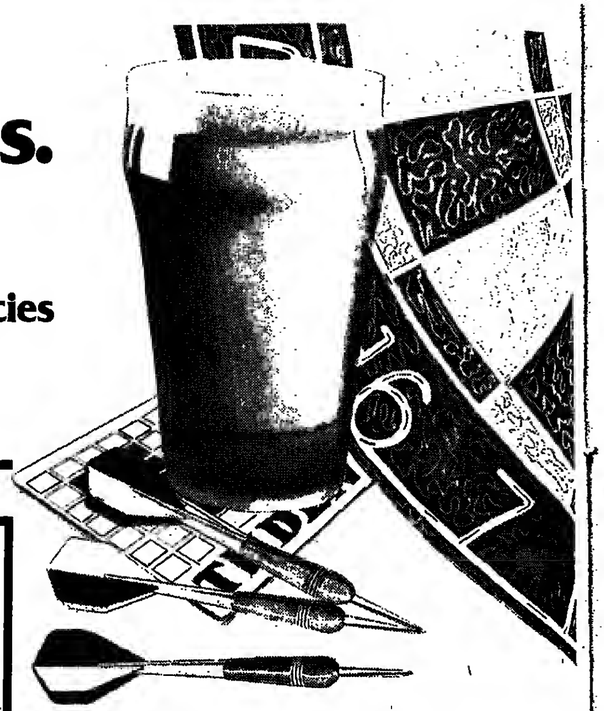

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We would like to hear from professional men and women who wish to progress their careers in a mainframe, mini or micro computer environment. For advice on a well-informed move contact Peter Jezeph or Bill Evens on Camberley (0276) 64252 or write enclosing a detailed C/V.

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We are still enjoying tremendous growth in all areas of our worldwide organisation — and the software side of our UK operation is no exception. That's why we're now looking for at least four talented Software Specialists to join us in either Bristol or Basingstoke.

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For both locations, the common responsibility will be to provide a high level of software support to both new and existing customers. To be more specific, we need Software Specialists to join us in Basingstoke and Bristol to work in tandem with our sales team advising on the suitability of DEC products and assisting in demonstrations and presentations. Software Specialists are also required at both locations to provide installation and post-sales support; and again in Basingstoke, another Software Specialist to work in our telephone support function analysing systems faults and advising our customers' software personnel.

To meet the many challenges of any one of these equally rewarding positions, you must be a mature and creative professional, aged 23-35 with a University or College education with more than 2 years' relevant experience — ideally gained on DEC operating systems or hardware. You'll also need a full driving

REGIONAL LOCATIONS FOR...

licence and good all round communication skills. A successful background in either a product support or a pre-sales environment would be an advantage.

If you're one of the men or women we're looking for, you can expect excellent rewards with Digital. In all cases, we offer attractive initial salaries together with a full range of valuable fringe benefits — including relocation expenses, where appropriate. And as you would expect from an expanding international organisation, the career prospects for the determined and ambitious are excellent.

So if you're an ambitious Software Specialist looking for more challenge, more responsibility and better rewards, ring us **NOW** on one of these numbers below. Alternatively, please write with full personal and career details to Tim Pedder at Digital Equipment Co. Limited, Wimgrove House, Basing View, Basingstoke RG21 2UR. Ref: SW/417.

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We are currently seeking a professionally qualified Design Engineer to work in a senior capacity for a prestigious communications manufacturer. Applicants must be capable of demonstrating their utilisation of both Analogue and Digital design techniques together with, ideally, a background in active-filter design. Ref: 5746.

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Our Client is an established Data Terminal manufacturer looking to increase its field engineering resources. Customer Support Engineers are required to maintain an existing range of terminals, VDU's and micro-processors, faulting to component level, in an area encompassing North and East London postal districts and surrounding counties. Initial product familiarisation will take place at the Head Office in the South West. It is likely that the successful applicant is currently enjoying either a field service role or seeking a move to field engineering from R & D, and is qualified to at least ONC level in electronics. Ref: 5775.

Field Service Engineer

London **up to £7,000 + Car**

To meet the demands of steady growth, our Client – a leading manufacturer in the field of computer peripherals – is in the process of recruiting an experienced Field Service Engineer. Ideally candidates will be in their mid-twenties and familiar with the faulting of data terminals, VDU's, daisy-wheel and matrix printers to at least board-level. Although emphasis is placed on relevant experience, a formal qualification would be an added bonus. Ref: 5773.

For further information please contact Robert Hogarth quoting the appropriate reference.

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Prerequisite requirements are a good level of education, age 25/35 and resident within the London or Southern Region.

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To learn more about thia unique opportunity with a company dsdicated to the leadership of superior technology please contact JAMES DE SIUN on 01-938 1804. Meetings are scheduled to take place before mid-March.

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Candidates should ideally have not less than ONE YEAR'S experience with substantial IMS involvement gained in either a Cobol or PL/1 installation. Knowledge of Assembler, JCL, CICS or TSO would be highly advantageous.

The income package is comprised of basic salary, standby allowance and bonus. Earnings are further enhanced by PAID OVERTIME. Relocation expenses will be forthcoming where appropriate.

To discuss this opportunity to further develop your career, please call Mike Wood quoting reference CW/304.

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The Company

In the U.K., Europe and the U.S.A., the communications business is both booming and buoyant and there are few companies that can rival our client in the pursuit of excellence of its products in this field.

The control of manufacturing end production has necessitated the growth of an international network connecting the U.K. with Western Germany, Northern and mid-Western America.

The Appointment

Modus has been requested to recruit a person to play a key role within the company. We need a young, dynamic and ambitious person to manage the MIS department – we are not looking for a seasoned manager, but somebody of project or team leader level who would like to move up a notch or two and take on the responsibility that such a position demands. The successful candidate will plan, organise and control the overall activity of the department.

Qualifications and Prerequisites

The successful candidate will probably be a graduate between 25 and 30 years old. An IBM background is essential, as is a knowledge of either IMS, which is preferable, or CICS – DL/1, accompanied by at least three years COBOL experience. Naturally, candidates with a manufacturing background and a knowledge of production, materials handling, order processing, purchasing and factory control will be very strong contenders.

The Configuration

Linked together, giving a tremendous amount of processing power, are two Amdahl V7's, an IBM 3033 and a 3081, all running under MVS. Access is made using an RJE, on-line 3270 system, networked via Germany to the U.S.A. IMS is the main interactive database in use and TSO/SPF is used for program development.

Future Plans

At present the MIS department is quite small, about five strong, but it is planned to expand over the next five years – so an excellent opportunity is being offered for someone to come in at ground level and really expand with the company.

A distributed system is in the experimental phase and it is possible that a local 4300, using CICS – DL/1, or even a Tandem computer will be installed – so there is a great deal of technical experience to be gained, if desired.

General Information

Housing in Hampshire is both reasonable and plentiful and the company offers an excellent relocation package – an ideal opportunity to enjoy the beauty of the New Forest.

Several trips to both Germany and the U.S.A. will be necessary, periodically during the year to liaise and co-ordinate activities with the company's divisional counterparts.

This must be considered as an attractive benefit but, more importantly is the chance to consolidate a really excellent career with one of the foremost 'blue chip' companies in the electronics industry today.

CW 25

Contact David Walldar for more details and information about the company.

IBM ANALYST PROGRAMMERS
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STRIKE ONE! This major international petrochemical company is currently expanding and seeks to recruit several analyst programmers to work on NEW SYSTEMS. They currently retain IBM 3033 hardware running under MVS using DATABASE. Applicants for this superb opportunity must possess a minimum of two years COBOL or PL/1 preferably with at least 'A' level standard of education. This 'blue chip' company can provide excellent scope for advancement and training opportunities in DATABASE techniques.
REF.S.D.5866

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REF.M.GEN.1

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REF.S.D.5960

RPG II/III ANALYST PROGRAMMERS
SURREY — IBM SYSTEM 38 — c £11,000

If you are currently programming in RPGII and will be for the foreseeable future then career wise you should be interested in the current System 38 RPG III vacancies currently available in Surrey. RPG III experience is useful but providing you have at least two years' RPG II experience, training will be given. Industries vary but include Pharmaceutical, Foods, Travel Companies, and Chemicals. Career progression within these companies is good and company benefits vary but are wide ranging.
REF.M.GEN.2

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REF.S.D.5926

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ROUGH & SMOOTH

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By nature of the role it is likely that the successful appointee will have a dual personality – preferably not of the schizophrenic variety!

On the one hand you will have the ability to manage a department of multi-disciplined Operations staff, totalling over 100 people.

The role is a demanding one – at times even rough, from departmental performance monitoring and scheduling through to budgeting and budget control.

It is essential that you will have at least five years relevant operations experience gained in a multi-hardware environment.

Knowledge of systems and programming would be advantageous.

In reaching the departmental objective which is the optimisation of over £5 million of computer equipment you will be taking on considerable responsibilities.

On the other hand...

The continuous introduction of new hardware and software will put the smooth running of your operation under pressure.

This will require you to be totally involved – even to the extent of rolling up your sleeves in a trouble-shooting role.

As a natural communicator you will be familiar with users at all levels.

Based in London, Sainsbury's current hardware configuration is diverse, complex and ever changing.

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(9553)

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ANALYSTS 2 years' experience + RPG 11	to £14K London/Home Counties
CONSULTANTS Banking/Insurance	to £20K Surrey/Berks/London
SENIOR PROJECT ENGINEER Peripherals/Industrial contracts	to £15K North London
PROGRAMMERS Cobol/IBM 3031/Commercial exp.	to £9K Leicestershire
SYSTEMS PROGRAMMERS VAX/PDP	to £Neg. France/Holland
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Do you have two years' solid programming experience using DOS and COBOL? Our client, in the field of finance, needs a senior programmer to look after the design through to implementation of various new projects which are in the analysis stage. CICS and D.L.I. experience would be an asset, but our client would be prepared to TRAIN IN CICS if necessary. This position provides a unique opportunity. There is also a good benefits package including fixed-time.

BASIC + ANALYSTS/SYSTEM DESIGNER c.£11,000

This forward thinking company has assessed its future requirements, and wants two systems analysts to head two new development teams. To qualify for these positions you must have at least one year's analysis experience in a commercial environment. A Systems Designer is also required with about eighteen months' design experience with a programming background.

PROGRAMMER to £11,500

This multinational organisation with offices in all the world capitals, are currently enhancing their software development teams, and to this end they require RPGII programmers with a minimum of 2 years' experience, preferably in a financial environment. The successful applicants will receive an excellent remuneration coupled with an extensive benefits package which includes, a subsidised house purchase scheme.

Emjay Computer Services
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London WC2

Call Harvey Kaye or Lynda Abt

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Recession! No! for this company. During the past two years' the volume of business and the profit has boomed. To enable them to keep up with the demands made on their software teams, they require PL1 programmers with a minimum of two years' experience. They have a large communications network, and for these successful applicants who have not had the exposure to Comms., full training will be given. There is a full range of fringe benefits including S.T.L. and a subsidised restaurant.

FORTRAN PROGRAMMER to £12,000

Are you a commercial FORTRAN programmer? Our clients, a financial organisation, require your expertise. You should have at least two years' FORTRAN on commercial applications, preferably with an Assembler language, although this is not essential. This is an outstanding opportunity to move into a progressive environment, where hard work is rewarded with promotion into analysis and management. The company offer good benefits coupled to an excellent starting salary.

Interested? Of course you are. CALL US NOW.

PROGRAMMER c.£7,500

Do you know BASIC +? If you have a minimum of one year's solid commercial programming experience using Basic +, then this international company is for you. The hardware comprises two mid-range PDP 11's using RSTS/E. Applications are varied and they require a person who can handle all spheres of commercial applications. The company is offering an excellent salary, good promotion prospects and a very stimulating and progressive environment.

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(8616)

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You will have 3–4 years experience in writing software in a process control environment on DEC PDP 11, using RSX 11M, a high level language and ASSEMBLER. A knowledge of system generation using RSX 11M is essential and continuing.

You will assist in the commissioning, development and maintenance of an Hierarchical Distributed Process Control System, using 11/44's, /34's and LSI 11/23's. Initially you will get hands-on experience in the USA before returning for the implementation of the process at Deeside.

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Interested? then write with comprehensive personal and career details to

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Second Avenue, Deeside Industrial Park,
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OPTICAL FIBRES

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We are looking for a Systems Analyst on a two year contract, salary ranging from £9,895 – £12,563 who will be responsible for the design and implementation of computer systems for Television users in Accounting applications.

We require at least two years' successful experience in analysis, design and implementation of computer systems.

The projects involve liaison with a wide range of user departments and analysts must be capable of effective communication and negotiation. They should show strong self motivation, flexibility and a thorough knowledge of and proficiency in computer processing techniques.

We require experience preferably of on-line systems design and implementation, preferably with ICL mainframe (1900 and 2900), and experience of costing systems.

Based West London. There are facilities for interest free ticket loans and this post will attract full holiday entitlement.

For further information contact Janet Holt on 01-743 8000 ext. 3693.

Please write or telephone for an application form direct to BBC Appointments, London W1A 1AA. (quote ref. 2111/CW and enclose s.n.e.) Tel: 01-580 3333.

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REDDITCH

The installation of an IBM System 38 has formed an integral part of the development of Serck Services and currently we have an opening for another Programmer to join our already strong computer centre team.

To be successful you will be aged 20-35, with at least two years' experience of programming in RPG II, you will be familiar with IBM GDS, hardware and ideally financial and/or stock control systems.

Your reward package will include a high basic salary, company pensions and insurance and every opportunity to develop your career into systems analysis.

INTERESTED?

Write to David Green, Personnel Officer, Serck Services Ltd, Claybrook Drive, Washford Industrial Estate, Redditch, Worcester, B98 0DZ with details of your experience and salary requirements.

(9671)

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We need two marketing executives to join our progressive team.

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IDS

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(7092)

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Applications are invited from persons with a sound technical background for this new post in the Treasurer's Department.

The Council is in the process of replacing its ICL 7503 terminal link and replacing it with an ICL ME29/37 machine. Some links with the Berkshire County Council's ICL 2976 main computer will remain, but independent development, together with local terminals and cash receipting terminals, is envisaged.

The successful applicant will preferably have experience of ICL equipment and systems, and possess the necessary managerial ability to commission the new ME29 and develop computing services within the Authority.

Bracknell is a modern town with good amenities, situated in a rural area of East Berkshire, within easy reach of London and the M4.

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Benefits will include flexible working hours, a subsidised staff restaurant, sports and social facilities and the chance to join BUPA at a generous discount.

For further details and an application form, please ring Bracknell 59985 (24 hour answering service) and leave your name, address, job title and where you saw this advertisement. Forms must be returned by 5 March 1982.

BRACKNELL DISTRICT COUNCIL

(8821)

SYSTEMS ANALYST — BUTTON, SURREY — To £10,000
Our client is committed to providing an on-line real-time service to users and several interesting applications being developed. A vacancy has arisen for a Systems Analyst with two years' systems experience using database, preferably on accounting systems.

SYSTEMS ANALYSTS — CENTRAL LONDON — To £11,000
3-5 years' analysis experience to work in IBM mainframe environment. Programming background an advantage.

PROG. TEAM LEADER — To £11,000
One of the largest and most up-to-date IBM mainframe installations with mins and micros as well, requires a COBOL programmer from an IBM environment. Applicants must have 4/5 years' commercial programming with management experience, preferably with database and CICS.

ANALYST/PROGRAMMER — To £9,000
Applicants must have 2/3 years' COBOL experience gained on Hewlett-Packard machines.

ANALYST/PROGRAMMERS — £7,000-£9,000
2/3 years' experience is required using COBOL on IBM machines. Excellent prospects.

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(9864)

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We are now entering another major phase in the development of our Field Service force and require a number of Field Engineers in the following areas: Greater London, Middlesex, Berks, Bucks, Surrey, Kent, Essex, Suffolk, Hants, Birmingham, Burnley, Oldham, Swindon.

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Please write or phone for an application form to: The Personnel Officer,

[8604]

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c.£9000

To meet the challenge of continuing company growth, J. W. Thornton Ltd., manufacturers and retailers of high quality confectionery, require an experienced Systems Analyst.

You'll join a small team currently engaged in the production of systems on Hewlett Packard 3000 hardware. The work will involve the design, specification and testing of software systems and the implementation with users.

You should have at least 3 years' experience as a Systems Analyst together with the ability to communicate effectively. Additionally you'll need to be flexible and self motivating as the post will at times involve working on your own initiative.

The salary and fringe benefits are attractive, including relocation expenses, and the job offers a genuine opportunity to make a significant contribution to the future development of the company's computerised systems.

For an application form please write or telephone the Personnel Services Manager, J. W. Thornton Ltd., Derwent Street, Belper, Derby, DE5 1WP. Tel. Belper 4181.

Thorntons

(8661)

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Salary scales: IB (£6,286-£8,926), IA (£8,070-£10,676) II (£10,160-£12,860). The appointments will be for an initial fixed term.

Write or 'phone for further details and application form to: Personnel Office, Bath University, Bath BA2 7AY (Bath 61244) quoting ref 82/20.

Closing date: March 15

(9677)

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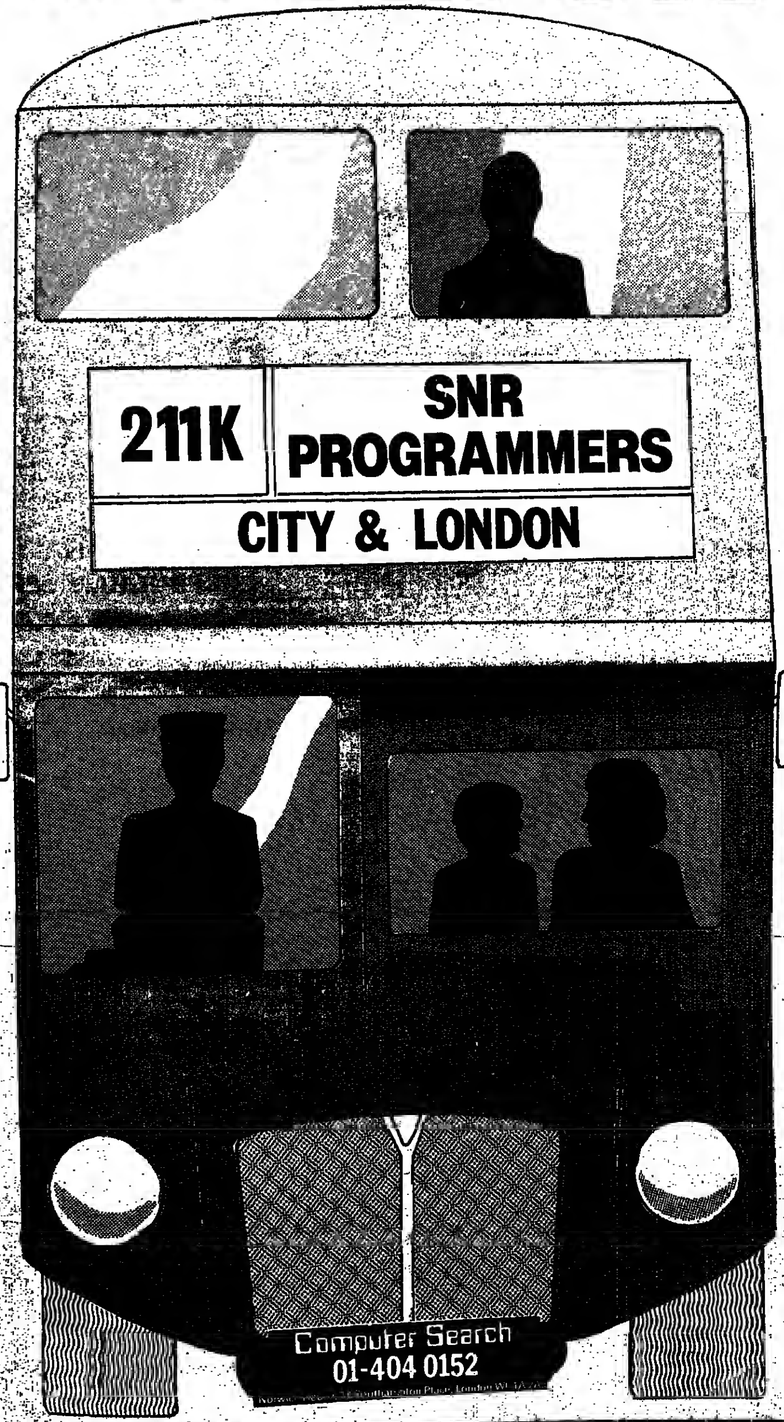

Climb aboard and you'll find this company's diversification of activities and career structuring just the ticket.

By following a policy of being totally committed to computerisation in all areas this nation-wide organisation is continuing to expand its network and range of applications in order to stay ahead of the field.

Your programming expertise and supervisory skills will be utilised to the full as you become totally involved with this expansion. You'll also be encouraged to show the potential of future project managers.

If you match the following requirements contact GORDON THOMPSON quoting AP 2612 for an early interview.

- ★ 3-5 years' programming experience
- ★ ICL mainframe background
- ★ Cobol expertise
- ★ Hons degree or equivalent
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(9683)

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GEC Telecommunications Ltd is in the vanguard of development in the field supplying sophisticated equipment to telecommunications authorities, business and military users across the globe.

Currently we are looking for a number of talented real-time software engineers to reinforce the teams at our Coventry headquarters, working on these interesting projects from concept to final customer acceptance.

The people we're looking for will be graduates with at least three years proven success in the development of medium or large systems using a high level language. A willingness to take responsibility is essential, since you could well find yourself leading a team.

Salaries will be negotiable in the range £8-10.5K. Other big-company benefits include a generous relocation package where appropriate.

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Now what's going to lure him in a small how!? You will have a very important part to play in the further development of this American commercial organisation. All you need is 2 years COBOL DOS/VSE, CICS/DL/1, would be familiar and like to be a self-starter. Flexitime and nice relocation package are offered plus excellent prospects. CW 8/8 DAWN

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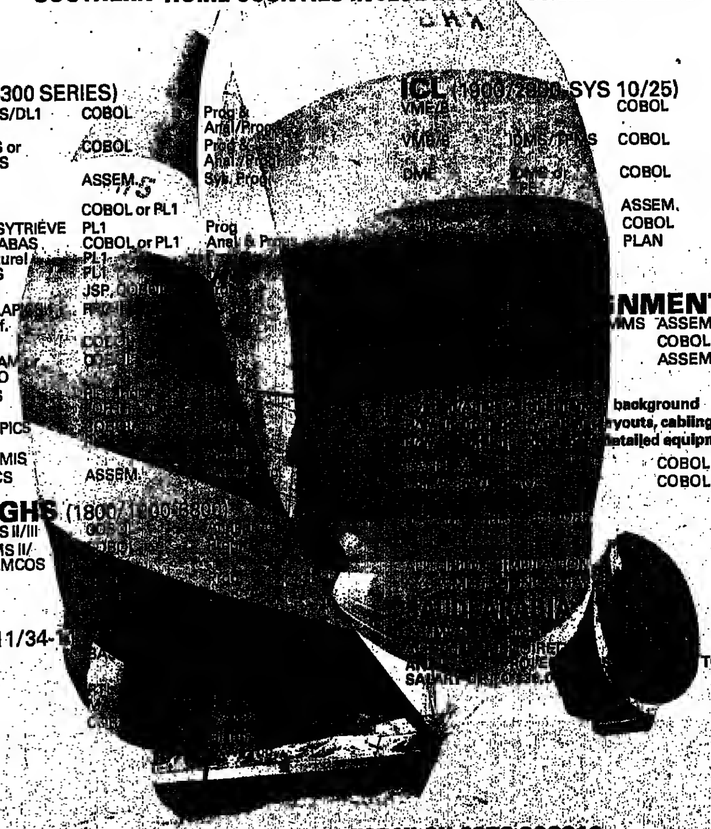

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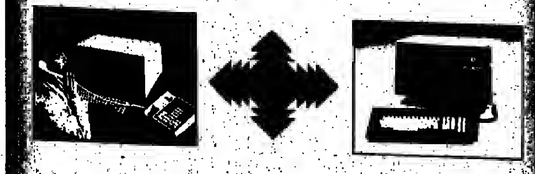
Our Credentials



Datapoint, a world leader of dispersed data processing during the seventies, is now making a major impact in the field of office automation.

In the UK, we employ some 500 people and have an installed base of more than 2500 systems. Our turnover is growing at a rate in excess of 40% per annum compound.

Marketing and support of our respected range of integrated business information systems are centred in our North London UK headquarters.

Our systems provide data processing, word processing, voice and data communications management and electronic message services, through our local area networks, to all sectors of industry and commerce.

DATAPOINT

Our Requirement

To enhance our impressive growth and profit record we are recruiting high calibre Account people to be based in our North London offices:

Account Managers c£22k on quota

Selling to and managing key accounts throughout the UK, the successful applicants will be skilled high level negotiators with a minimum of 5 years' experience within similar product environments.

We offer an attractive benefits package including a basic salary of between £9-12k, generous 12 month guarantee, a realistic and achievable quota realising on quota earnings of up to £22k, a 2 litre company car and excellent career prospects.

Account Director c£24k on quota

Ideally with experience in CCTA, the Account Director will have a proven record of success both within the large systems market and of people and account management.

We offer a benefits package commensurate with the seniority of the position.

For further details ring our Recruitment Adviser Roger Haylock at Sales People on 01-836 8411 quoting Ref. No. SP116 (reverse charges during office hours, 24 hours answering service) or on 05432-57483 (weekends).

BUICK COMPUTER SERVICES

Recruitment Division 72 Rochester Row
Victoria, London SW1P 1JU

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D.P. RECRUITMENT CONSULTANT
We are seeking an ambitious and self-motivated Consultant with a professional approach to DP recruitment activities. You will display either a successful track record within recruitment consultancy, or a sound DP background, ideally in a customer support role. In return, we can offer higher personal rewards based on achievement, coupled with greater scope and responsibility.

D.P. CONSULTANTS — LONDON — to £17,000+
To join a well-established management consultancy organisation and to advise clients in a wide variety of industries and applications. Applications will probably be in their mid-thirties, having established careers, within Systems/DP Management, and are seeking to broaden their horizon in the consultancy role. Experience of banking, insurance or other financial applications would be of particular advantage.

To MANAGING CONSULTANT Level — to £20,000+
This major organisation is looking for development personnel up to Managing Consultant, to advise and assist their clients within the U.K. and abroad. Applications must have a solid DP experience at the appropriate level, including a knowledge of COBOL or PL1 with CICS, and must be able to work on their own initiative. Excellent prospects for promotion. Similar requirements exist with a number of other clients who need DEC, PRIME and ICL expertise.

ANALYSTS TO PROJECT LEADER Level — to £15,000 + package
Our client is an international Organisation with a large investment in the development of on-line systems and are seeking development staff at all levels. The successful applicants will have a minimum of 3 years' programming experience preferably in COBOL, FORTRAN or ASSEMBLER, together with a proven track record in systems development. There is ample opportunity for career progression in a dynamic environment. The package includes relocation expenses, where applicable.

RPG 2/3 PROGRAMMERS to SYSTEMS CONSULTANTS — to £15,000
A number of our clients situated in London/Home Counties, South East England and Midlands are seeking Programmers and Analysts with 2-3 years' RPG experience, preferably on System/34 and/or System/38 equipment, capable of working on their own initiative. Applications include the specification, design and implementation of a wide variety of commercial systems; and for at least two sites this includes the added attraction of a COMPANY CAR, together with occasional trips abroad.

SENIOR SYSTEMS ANALYSTS — LONDON — £14,500+
This International Company is expanding its information service, and requires someone with strong financial systems experience, coupled with a working knowledge of TOTAL database design. The successful applicant is also likely to have mini/micro experience and a sound background in IBM programming.

SYSTEMS PROGRAMMERS — to £14,000+
A number of companies in London and the Home Counties need Systems or Support Programmers with up to 4 years' ASSEMBLER and/or COBOL, PL1, APL, with CICS/DL1 experience to perform important roles in design and software development, in DOS/VSE(E), OS/VS1 or MVS DB environments. Opportunities exist to enhance your skills, by keeping abreast of technological changes.

SENIOR SYSTEMS ANALYST — LONDON — £13,000 + profit share
This large company needs someone with at least 3 years systems experience, to work on the design and implementation of real-time financial applications. Experience of database concepts are essential for this position.

SYSTEMS ANALYSTS — LONDON/HANTS/HERTS/KENT — to £13,000
Applicants with at least 2 years' systems experience are urgently needed by several large companies specialising in the financial field. Knowledge of Banking, Insurance or other financial applications is advantageous, as is experience of IBM or DEC equipment. Attractive benefits accompany the salaries being offered.

SENIOR ANAYST (IDMS) — £12,500 + benefits
Major North London Company, undergoing substantial development programme, is seeking a key person, preferably with IDMS experience to work on Personnel and related applications in an MVS environment. Benefits include bonus and relocation expenses. IMS experience is required for a similar position with another London-based company involved in the engineering and construction business.

SENIOR ICL PROGRAMMERS — U.K. AND ABROAD — £12,000 + allowances
Major Software House has an ongoing requirement for Programmers with at least 3 years COBOL experience to work on various client projects. The successful applicants must have a good understanding of ICL software, preferably with VME/B and IDMS. Generous overseas allowances given.

SYSTEMS PROGRAMMERS to TEAM LEADER Level — BERKS — to £12,000
A market leader in the application of advanced microprocessor techniques needs computer professionals to work on projects involving the Application of state of the Art 8 & 16 bit microprocessors for dedicated engineering applications. Candidates must have a minimum of 2 years' systems software programming experience using ASSEMBLER, SS, FORTRAN, PASCAL, or ALGOL.

COBOL PROGRAMMERS — LONDON/HERTS/MIDDX/SUSSEX — to £12,000
A number of predominantly financial organisations require Programmers with 1-3 years' experience, preferably in a DOS/VSE(E) environment, with CICS and DL1 a distinct advantage. The chance to work on a wide variety of interesting development projects is coupled with good financial rewards and attractive perks.

BUSINESS ANALYSTS — MIDDX/LONDON — £11,000 + car
Good financial background, plus confidence and personality is needed for these interesting positions, involving project negotiation, systems design and specification in a user-orientated environment. Some travel may be involved.

ANALYST/PROGRAMMERS — MIDDX/LONDON — c£11,000 + bonus
This leading Software House requires Analyst/Programmers for the development of a wide variety of interactive real-time systems. Applicants must be capable of working on their own initiative and have a sound programming background. A knowledge of DATA GENERAL equipment would be an advantage.

FORTRAN SPECIALISTS — LONDON/HOME COUNTIES — c£11,00
Programmers and Analysts are required to join existing development teams to work on a variety of applications including scientific, engineering and commercial projects. An IBM, DEC or CA background would be a plus, but it is not essential. Excellent fringe benefits.

DATA PROCESSING MANAGER — c£11,000
The rapidly expanding organisation is seeking a D.P. Manager to take responsibility for the running of their System/38 installation. This position would ideally suit an Analyst/Programmer with RPG2/3 together with System/34 or 38 experience, capable of taking on this new role.

PL1 PROGRAMMERS — LONDON/HOME COUNTIES — to c£11,000 + benefits
A minimum of 2 years' PL1 experience is required for development of on-line applications, and a working knowledge of DICS and DL1 would be an advantage. Several of our clients also seeking Junior Programmers with at least 6 months PL1 experience, with prospects of moving into analysis.

SYSTEMS INSTRUCTOR — LONDON — c£11,000
This organisation, highly skilled in the training of all levels of development personnel, is seeking a talented Analyst to impart the knowledge, techniques and disciplines of systems analysis.

BASIC(PLUS) & ASSEMBLER PROGRAMMERS — TO £10,500 + BENEFITS
We have a number of vacancies in London/Home Counties for Programmers with up to 18 months' BASIC + AIMS or ASSEMBLER experience, with the opportunity to work on a wide variety of commercial and scientific systems. Excellent opportunities for career progression, plus attractive fringe benefits, including low interest mortgage facility, bonus schemes and low cost travel.

PROGRAMMER/ANALYST — LONDON — £10K + profit share + bonus
This Software House requires a dynamic person with imaginative analysis skills and two years IBM COBOL, to play a leading role in the development of interactive systems on IBM 4300 equipment.

ANALYST/PROGRAMMERS — ESSEX — £10,000 +
Our client is looking for DP professionals with at least 12 months commercial Systems Analysis together with a working knowledge of COBOL. As the installation is converted from ICL to IBM 4300 equipment, this is an ideal opportunity to gain experience on new equipment. Excellent fringe benefits.

PROGRAMMERS AND ANALYSTS — SUSSEX — £10,000
Expanding manufacturing company is looking for Programmers and Analysts with a minimum of 2 years' experience in a low level language. Successful applicants will be trained on IBM hardware and equipment manufactured by the company. Excellent prospects.

PROGRAMMERS — LONDON/ESSEX — £10,000
This company needs Programmers with 2 years' experience of IBM COBOL, to cope with their expansion plans. An ideal opportunity exists to progress to Analysis on medium and large Systems.

ANALYST/PROGRAMMER — LONDON/ESSEX border — £9,000 + leased car + BUPA
An Analyst/Programmer with COBOL experience is required to join expanding DP team in high cost durable distribution business. UNIVAC experience, plus the ability to work with non-DP staffs are distinctly advantageous.

PROGRAMMERS & ANALYSTS — SUSSEX/KENT — £9,500-£12,000
Expanding electronics company need Programmers and Analysts to develop a variety of commercial or scientific Systems. Applicants must have a Degree, together with a minimum of 2 years' programming experience using IBM or DEC equipment. Opportunities also exist for Programmers to be trained in Analysis.

ANALYST/PROGRAMMERS — SUSSEX/KENT — £9,000-£11,000 + mortgage
Several major insurance organisations are seeking computer professionals with at least 18 months COBOL experience to work within their development teams using database software on IBM 370/4300 and UNIVAC 1100 equipment. Opportunities exist to gain an in-depth knowledge of database techniques and skills associated with networks.

ANALYST/PROGRAMMERS — HERTS/LONDON — £9,000-£11,000
Several companies involved in Banking, Insurance, and other commercial applications require staff with at least 12 months' analysis experience and a sound COBOL or BASIC+ programming background. Experience of DEC, BURROUGHS, or IBM equipment are essential for these positions.

H.P. ANALYST/PROGRAMMERS — £8,000-£11,000
Several well known companies, situated in Middlesex, Beds, Herts and the City, have urgent requirements for Analyst/Programmers who have had exposure to HEWLETT PACKARD 3000 equipment and software. Experience of distributed database systems would be an advantage, but not essential.

ANALYSTS & PROGRAMMERS — £7,000-£10,000 + benefits
We have been advised by a number of ICL 1900/2900 Clients in Central London, Home and Southern Counties of vacancies for Analysts and COBOL Programmers with 1-3 years experience to join their development teams. Some online experience would be useful, plus a good understanding of ICL systems software. Benefits include PPF, and subsidised mortgage, productivity bonus, flexi-hours.

JUNIOR PROGRAMMERS & ANALYSTS — £6,000-£9,000
A number of clients situated in London and Home Counties have vacancies for Junior Programmers and Analysts with up to 12 months' COBOL experience, to assist in the development of a variety of applications, including banking, manufacturing, etc. Benefits include Mortgage and Subsidised Restaurant and Season Ticket Loan.

JUNIOR (TRAINEE) BUSINESS ANALYST — MIDDX — £5,000-£7,000
This position would ideally suit someone wishing to move into pure Business Analysis. The successful candidate will possess good communication skills, preferably with a measure of commercial experience and theoretical Systems knowledge.

SHIFT LEADER — HANTS — £8,000 + benefits
This large company requires a Shift Leader to take responsibility for one of their three shifts. Supervisory experience and a working knowledge of BURROUGHS 6800 are essential for this position. Benefits include mortgage subsidy and N.C. Pension.

COMPUTER OPERATORS — ESSEX/MIDDX/LONDON — to £7,300+
Two financial organisations require operators with at least 18 months DOS/VS, OS or MVS experience, to work 2 and 3 shifts plus occasional overtime. Benefits include mortgage subsidy for London vacancy. Good prospects.

COMPUTER OPERATOR — ESSEX — c£6,500
This company needs an Operator with 12 months experience on 2904/2960 operating in a 2 shift environment under EXEC 8/DME. Applicants must reside within commutable distance to Harlow.

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PL1 CICS/DL1	U.K., EUROPE & U.S.A.	3-12 months
PL1, IMS	U.S.A. & SAUDI ARABIA	12 months (min)
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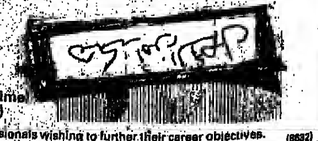
HP COBOL	U.K.	3 months
PASCAL (Preferably on T.I.)	U.K.	3 months
BASIC	U.K.	3-6 months
RPG 2/3	U.K. & U.S.A.	3-12 months (min.)
NATURAL	U.K.	3 months
COBOL, CICS	U.K., EUROPE & U.S.A.	3-12 months (min.)



Tel. 01-834 5923 (Daytime)
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The above vacancies are only a token set, often taken from our current files, and we welcome a chat from computer professionals wishing to further their career objectives. (8632)

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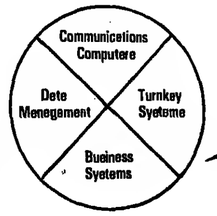

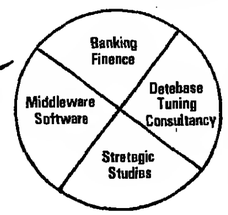

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Technically and commercially minded candidates will derive every satisfaction from applying their skills to their maximum extent. In this company, business systems design takes every advantage of hardware and software features as a matter of course.

Our client is a successful, profitable and expanding company with an international reputation for advanced computing and communications skills. They provide services and products in various countries around the world to major companies, professional bodies and government organisations. For employees the company provides an excellent range of benefits including relocation assistance where appropriate. Prospects for advancement and long term career development are excellent.

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UNIVERSITY COLLEGE CARDIFF COMPUTING CENTRE
Applications are invited for the newly established post of
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In the COMPUTING CENTRE to undertake responsibility for planning the development of computer communications at Cardiff. The main areas concerned are the connection of 8 new Honeywell Multics computer to the South West Universities Computer Network and the development of a Local Area Network involving university institutions within Cardiff. Applicants (preferably graduates) should have experience of successful projects in implementing and co-ordinating communications networks and should be familiar with standard modem, X25, protocols. The appointment will be on the "Other Related" salary scale Grade 1A (£8670-£10578) or Grade 1 (£10100-£12600).
Applications (2 copies), together with the names and addresses of two referees, should be forwarded to the Vice-Principal (Administration and Registrar), University College, PO Box 78, Cardiff CF1 1XL, from whom further particulars may be obtained. Closing date 1st March, 1982. Ref: 2365. (8699)

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Required for Engineering Production to provide general programming service. Must be trained and experienced in FORTRAN and have two "A" levels or similar. Salary scale £4491-£5718 p.a.
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IBM	Analyst (MVS VSAM)	3 Months +	City
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Interviews will take place in our London showrooms at 40/41 Pall Mall, London, SW1. (8580)

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TO £11,000

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A major international manufacturing company has interesting career opportunities for Software Support Programmers to help with system tuning, the introduction of new software, the support of additional software packages and the support and development of a data comms European network based on ITT 3805s.

You must have:

★ At least three years' experience in software support.

★ ASSEMBLER experience.

★ MVS with JES2 experience.

★ The ability to work in an organised manner and without excessive supervision.

★ Good powers of communication.

Although not essential, it would be useful if you have any experience in supporting IMS/VS or teleprocessing software.

For further information, please contact MARK IRENS – Advising Director quoting reference CW2502/1.

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Please contact BOB BOWER – Advising Director to arrange a quick meeting.

Ref. CW2502/2

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They need another Sales Executive to join their successful team. The rewards will be excellent for the right person who should have:

★ A strong technical/engineering background in current disk technology.

★ A sound understanding of the OEM/Distributor market place in U.K.

★ A successful record in sales or support with the ability to move into sales.

Please telephone BOB BOWER – Advising Director for details.

Ref. CW2502/3

(8606)

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ComputerWeekly

March 4th, 1982

MIDLANDS RECRUITMENT FEATURE

The March 4th issue of Computer Weekly – Britain's highest requested computer journal – will contain a special feature outlining career opportunities in the Midlands.

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The combination of this special editorial feature together with Computer Weekly's highest penetration of the key job-titles of Analyst, Programmer and Operator, provides a first-class recruitment advertisement platform.

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INTERNATIONAL RESPONSIBILITIES **TO 15K**

This is a new, key appointment with an international manufacturer based in London, with responsibilities throughout Europe.

Candidates should have worked in an S.L.D.C. environment and MUST have specific experience of:

- Software distribution and literature control.
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- The management of software distribution in a manufacturing environment.
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(8670)

SWALE BOROUGH COUNCIL

Finance Department

ANALYST/PROGRAMMER
Post 105F
Salary S.O.2 £8,991 to £9,522 per annum

C.M.C. Reality Computer System shortly to be installed and an experienced analyst required to set it up. Applicants should have at least 2 years' experience (using high level language preferably BASIC, be innovative and capable of dealing with users at all levels. Good programmers looking for career progression considered.

Casual User car allowance, car loan facilities, removal expenses paid and other expenses up to £800.

Application forms and job description available from Personnel Department, Council Offices, Central Avenue, Sittingbourne, Kent, ME10 4NT (telephone Sittingbourne 24881 ext. 214). Closing date 15th March, 1982 and interviews to be held 25th March.

(8844)

PAISLEY COLLEGE

COMPUTER OPERATOR (SHIFT LEADER)

A vacancy exists for a Shift Leader to work in the Computer Centre, which provides a service based on PRIME hardware. Applicants must have experience in computer operations at a supervisory level. Experience of Prime equipment would be an advantage, but is not essential.

Two shift working is operational during term times, and the Salary Scale is £5925 to £6639 plus shift allowance (20%).

Application forms are available from the Personnel Officer, Paisley College of Technology, High Street, PAISLEY PA1 2BE (tel 041-887 1241 ext. 226) to whom completed forms should be returned by 16 March 1982.

(8862)

CONTRACT ANALYST/PROGRAMMERS
Training Provided

LINK ASSOCIATES is in the unusual position of being able to offer interesting contract assignments which include training in new skills.

To be considered you will have the following background:

★ **Relational Database — ideally ADABAS**

★ **IBM mainframes — ideally DOS**

★ **On-line experience — ideally CICS**

Contracts are in London and Home Counties and will start from mid-March onwards.

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Mott, Hay and Anderson are international consulting engineers with a very wide practice in civil and associated mechanical and electrical engineering.

We require an Engineer with experience of structural analysis, including the finite element method, and of Fortran Progamming to join our Computing Services Group. The group provides a wide range of computing services for the company and to outside clients.

The successful candidate, although specialising in structural analysis, would work closely with other members of the group. The firm's computing facilities include a DEC VAX 11/780 computer, computer aided draughting and word processing systems.

There could also be opportunities to take part in a design team for major engineering projects, and for travel abroad.

Please reply in writing giving brief details, quoting reference No. 218, to:
Associate for Personnel, Mott, Hay and Anderson Holdings Ltd., 2026 Wellesley Road, Croydon, CR9 2UL.

(8830)

Mott, Hay & Anderson
International Consulting Engineers

TAMESIDE METROPOLITAN BOROUGH COMPUTER DEPARTMENT

An ICL 2956 Computer has recently been installed running under DME/GEORGE 3, shortly to be replaced by an ICL 2988 under CME. The Authority has an extensive computer development plan.

To implement this and assist in conversion to VME we require:

(A) **2 SYSTEMS ANALYST/PROGRAMMERS**
(New Posts) £8991-£9993 p.a.
At least 3 years' COBOL programming and one year's experience in Systems Analysis.

(B) **1 SENIOR PROGRAMMER**
£7371-£8628 p.a. according to experience.
At least three years' COBOL programming.

Candidates must also have extensive experience of either GEORGE 3 or VME operating systems.

Application forms and further details from Chief Personnel Officer, Council Offices, Wellington Road, Ashton-under-Lyne, Greater Manchester OL6 6DL to be returned by the 16th March, 1982.

(8606)

Assistant Computer Operations Manager
£10,000

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You can see therefore why we need a man or woman for this new management position who is adept at ensuring work flows through the various areas of the department, accurately, punctually and efficiently. We would be looking for you to have ICL 2900 experience with VME/B, and proven management ability. In terms of career development potential, we can provide what others cannot. Other benefits we can provide are also worthwhile.

To apply, please telephone Norma Rolph on Stevenage (0438) 4371 for an application form.

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South African CRB (Pty) Ltd have, in a period of 12 years, grown from a broker of used computers to an organisation providing complete computer capability. CRB market a comprehensive range of IBM-compatible equipment and computer products, supply independent maintenance services and provide their own software support. They have an excellent growth record and are projecting a doubling of their size in the next two years. They are looking for –

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An IBM background and/or an in-depth knowledge of IBM plug-compatible equipment is an essential prerequisite.

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R18K to R24K

Candidates must have experience in maintaining the IBM 370 range or equivalent.

CRB offer the usual fringe benefits associated with a progressive company, but computer engineers additionally receive a 13th cheque, car allowance and performance awards.

Final interviews will be conducted by CRB's Managing Director during the second week of March. In the first instance could you please contact Chas Stolper at:

Prescot Computers Limited
11/13 Broad Court
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Telephone: 01-836 8885/6

(8582)

Programmer/Statistician

Vacancies exist in the Resource Management Group of the Computing Division at the Rutherford Appleton Laboratory. The positions involve various activities associated with the management of the computing resources on the SERC network. Knowledge of programming, statistics and database techniques is essential. A familiarity with IBM's CMS would be a distinct advantage.

The user community is some 8000 Scientists and Engineers in the British Universities. The computing system consists of large IBM batch and interactive machines (3032/3081) and various multi-user mini computers on a large distributed network throughout the UK.

Posts are based at the Chilton site and will be in one of the following grades:

Scientific Officer	£5,176 – £6,964
Higher Scientific Officer	£6,530 – £8,589

Some assistance with removal expenses may be allowed in appropriate cases.

Appointment as a Higher Scientific Officer requires a good honours degree and several years experience in this field.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby. We offer excellent working conditions and benefits include a local transport service, generous holidays, sick leave allowance and a non-contributory superannuation scheme.

For an application form, please write to: Recruitment Office, Personnel Group, Science and Engineering Research Council, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon. OX11 0QX, quoting ref VN025 or telephone Abingdon (0235) 21900 Ext. 510.

Closing date for applications: 11th March, 1982.

8495

Rutherford Appleton Laboratory — In the forefront of research

Data Processing Manager

The Company is a successful book publisher and distributor providing a high standard of D.P. Services for its customers and will shortly be up-grading its Data Processing to an ICL System 25 from the ICL 220 machines at present in use.

The D.P. Manager is responsible for the successful running of the Department and for ensuring that the business needs of the Company are met within a demanding time scale.

The successful candidate (male or female) will have had several years experience in data processing, using DMF II and assembler, and will also have had management experience.

This position is based in Plymouth and relocation expenses will be paid. The rewards include a five figure salary, company car and fringe benefits.

If you feel you could accept this challenging opportunity write giving details of work experience, qualifications, age and salary progression to: The Financial Director, Macdonald & Evans Ltd., Estover Road, Plymouth PL6 7PZ.

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IBM DOS COBOL	ANALYST/PROGRAMMERS
IBM + COBOL + TOTAL DB	ANALYST/PROGRAMMERS
UNIVAC 1100 COBOL DMS2	PROGRAMMERS
IBM DOS COBOL + DL/1	ANALYST/PROGRAMMERS
IBM DOS COBOL + ANY GOOD DB	ANALYST/PROGRAMMERS
IBM DOS COBOL + ADABAS	ANALYST/PROGRAMMERS
ICL 1900/2900 GEORGE 3	SYSTEMS PROGRAMMER

IBM

IBM IMS COBOL	ANALYST/PROGRAMMERS
IBM OS/MVS PL/1 IMS	PROGRAMMERS
IBM VM/CMS COBOL	ANALYST/PROGRAMMERS
IBM OS CICS PL/1	ANALYST/PROGRAMMERS
IBM MVS	SYSTEM PROGRAMMERS
IBM IMS	ANALYSTS + PROGRAMMERS
IBM OS/VS1 VTAM VSPC	SYSTEMS PROGRAMMERS
IBM DOS PL/1	ANALYST/PROGRAMMERS
IBM SYSTEM 38 RPG 3	ANALYST/PROGRAMMERS
IBM SYSTEM 34 RPG 2	ANALYST/PROGRAMMERS
IBM DOS COBOL	PROGRAMMERS
IBM DOS COBOL + DL/1 (MARCH/APRIL)	ANALYST/PROGRAMMERS
IBM DOS COBOL + ADABAS (MARCH/APRIL)	ANALYST/PROGRAMMERS
IBM DOS COBOL + TOTAL	ANALYST/PROGRAMMERS

ICL

ICL + RANGE COBOL	PROGRAMMERS
ICL 2900 VMEB IDMS TMPS (APRIL)	DESIGNERS
ICL SYSTEM 10 COBOL	ANALYST/PROGRAMMERS
ICL SYSTEM 10 ASSEMBLER	ANALYST/PROGRAMMERS
ICL ME29 RANGE COBOL +/– IDMS	ANALYST/PROGRAMMERS
ICL 2900 RANGE COBOL +/– IDMS	PROGRAMMERS
ICL 2900 COBOL DME (TPS)	PROGRAMMERS
ICL 2900 VMEB	TECHNICAL SUPPORT

OTHERS

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PDP11 RSX11/M FORTRAN	ANALYST/PROGRAMMERS
PDP11 RSX11/M RTL2	ANALYST/PROGRAMMERS
UNIVAC 1100 COBOL DMS2	ANALYST/PROGRAMMERS
UNIVAC 1100 OS COBOL DME2	PROGRAMMERS
BURROUGHS 6800 MCP COBOL	ANALYST/PROGRAMMERS
H.P. 3,000 IMAGE VIEW QUERY COBOL	ANALYST/PROGRAMMERS
HONEYWELL LEVEL 6 COBOL + SCREENWRITE	PROGRAMMERS
VAX VMS COBOL (APRIL/MAY)	PROGRAMMERS
BURROUGHS 5800 DMS2 COBOL	ANALYST/PROGRAMMERS
HONEYWELL LEVEL 64 IOS TDS COBOL	ANALYST/PROGRAMMERS

ANALYSTS

IBM + BANKING EXPERIENCE	ANALYSTS
IBM + DATABASE EXPERIENCE	ANALYSTS
IBM + ADABAS EXPERIENCE	ANALYST
VAX SALES ORDER PROCESSING EXPERIENCE	ANALYSTS

OVERSEAS + SAUDI

ICL 2900 IDMS COBOL	PROGRAMMERS
IBM OS/MVS PL/1 TSO/SPF	PROGRAMMERS
IBM OS/MVS + PL/1 + MARK 4	PROGRAMMERS
IBM + DOS PL/1 IMS DB/DC	ANALYST/PROGRAMMERS
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IBM OS PL/1	PROGRAMMERS
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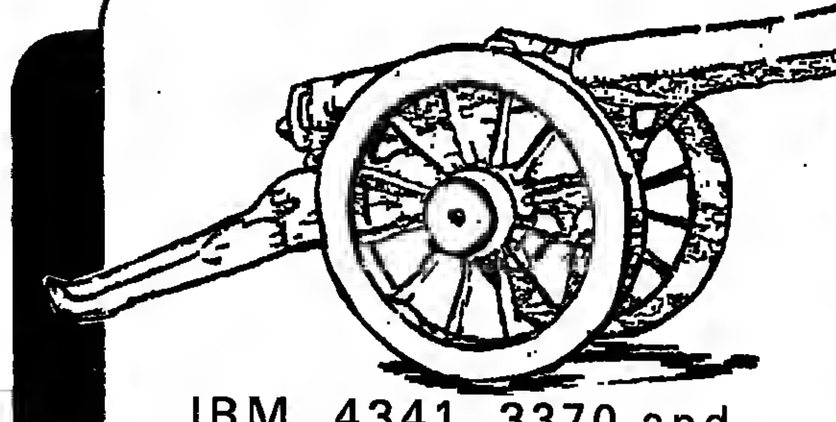
(8675)



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package to:

£13,000

If you have more than two years' experience in analysis Cannon need your skills. A knowledge of insurance or a programming background are highly desirable. You must have a logical problem solving attitude together with excellent communication skills for this position. You should have completed at least one major project from feasibility through to implementation.

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Cannon is seeking a capable PL/1 programmer who has some analysis experience ideally gained in a commercial or financial environment. A minimum of one year's programming and one year's analysis experience is essential. Promotion prospects within this company are excellent.

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THE SPECIALIST RECRUITMENT SERVICE DIVISION OF COMPUTER SYSTEMS INTERNATIONAL
Computing Services Association
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prolog

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Practical experience of Structured Programming is essential, although other training will be given where necessary.

Benefits include five weeks' holiday, flexible working hours, free car parking, subsidised restaurant and an on-site Sports and Social club.

Application form and further details from Controller of Personnel Services, Town Hall, Forest Road, E17 4JF. (Tel: 01-531 8899, 24-hour answering service). Please quote Ref: B 4386.

Closing date: 12th March, 1982.

(8654)

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Waltham Forest

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Cambridge — **Package £8,500 neg**

- Our client is a leading firm of Chartered Surveyors managing property throughout the country. A DG Nova 4 System has recently been installed and the Partners now wish to appoint a Senior Programmer/Analyst to develop the computer function. This will involve a wide range of tasks including responsibility for the installation of new systems in other areas of the business.
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- Package negotiable around £8.5K, including annual merit bonus, medical and health insurance, pension scheme. Assistance with relocation. Promotion to DPM is anticipated.
- For further details and an application form please telephone Linda Shand, Recruitment Secretary, on Windsor (07935) 87175 (24 hrs) quoting ref DM/399.

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D.P. OPPORTUNITIES MIDLANDS AND SOUTH

MIDLANDS – 021-643 1994

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Sales Executives	(DEC based mini-computers)	on target c£25,000+car
Programmer	(3 yrs. COBOL- UNIVAC exp.)	c£7,000
Programmer	(2 yrs. COBOL - ICL and/or D.G. exp.	c£8,000
Programmer	(1 or 2 yrs. ICL COBOL exp.)	c£6,500
Programmer	(1 or 2 yrs. IBM COBOL, ideally CICS and DL1)	c£6,500
Programmer	(In depth BASIC PDP II exp.)	c£8,000+car
Service Engineers	(micro-based business equipment exp.)	c£7,000+car
Systems Analyst	(Design + ICL comms. exp.)	c£8,000
Computer Modeller	(Financial accounting background)	c£7,000
Systems Analyst	(Good UNIPAY knowledge)	c£8,000
Programmers	(In depth H.P. FORTRAN)	c£8,000

NORTHERN HOME COUNTIES – EAST ANGLIA (0279) 506464

IBM COBOL Programmer (2 yrs.+)	£8,000+
Analyst/Programmer (3 yrs. DEC/ASSEMBLER)	to £11,000
Senior ICL/COBOL Programmer	c£8,500
Senior Analyst (Design on IBM System 34)	c£12,000
Systems Programmer (IBM VSE/VSAM/CICS)	to £11,000
ICL COBOL Programmer (9 months+)	£6,500+
Senior Programmer/Analyst (2 yrs. COBOL+FILETAB)	£8,500+
Field Service Engineer (DEC exp.)	to £8,500+car+benefits
O & M Analyst (3 yrs. exp.)	to £9,500
Senior Programmer (5 yrs COBOL + CICS)	to £9,500
Senior Analyst (In depth; ideally ICL)	£ neg
Field Service Engineers	to £10,000
(2 yrs. exp. minis & micros)	to £7,500+car

SOUTHERN HOME COUNTIES – SOUTH EAST ENGLAND 0293-514071

APL Programmer (Degree in Computer Science+2 yrs.' exp.)	£9,500+
Consultant/Project Manager (8 yrs.+commercial exp.)	to £14,000
Analyst/Programmer (3 yrs.+exp. DEC & IBM, COBOL/BASIC PL1)	to £10,000
Programmer (2 yrs. RPG II on IBM 34)	£ neg.
Programmer (2 to 3 yrs. COBOL exp.)	to £8,000
Management Consultant (Extensive DP Management exp.)	to £17,000
Software Lecturer (3 to 9 yrs. COBOL lecturing exp. est essential)	£ neg.
Programmers (2 yrs.+ICL Syst. 10, ASSEMBLER)	to £10,500
Systems & Programming Consultants (IBM Syst. 34/38 2 yrs. COBOL/RPGII)	to £12,000
Programmer (2 yrs.+COBOL on IBM 4341 or IBM 3033)	c£7,500
Analyst/Programmer (3 yrs.+industrial exp. COBOL)	£ neg.
Senior Programmer (8 yrs.+commercial exp. COBOL on IBM)	to £10,500

To discuss these and other opportunities please telephone your local office 9 a.m. to 8 p.m. out of hours answering service

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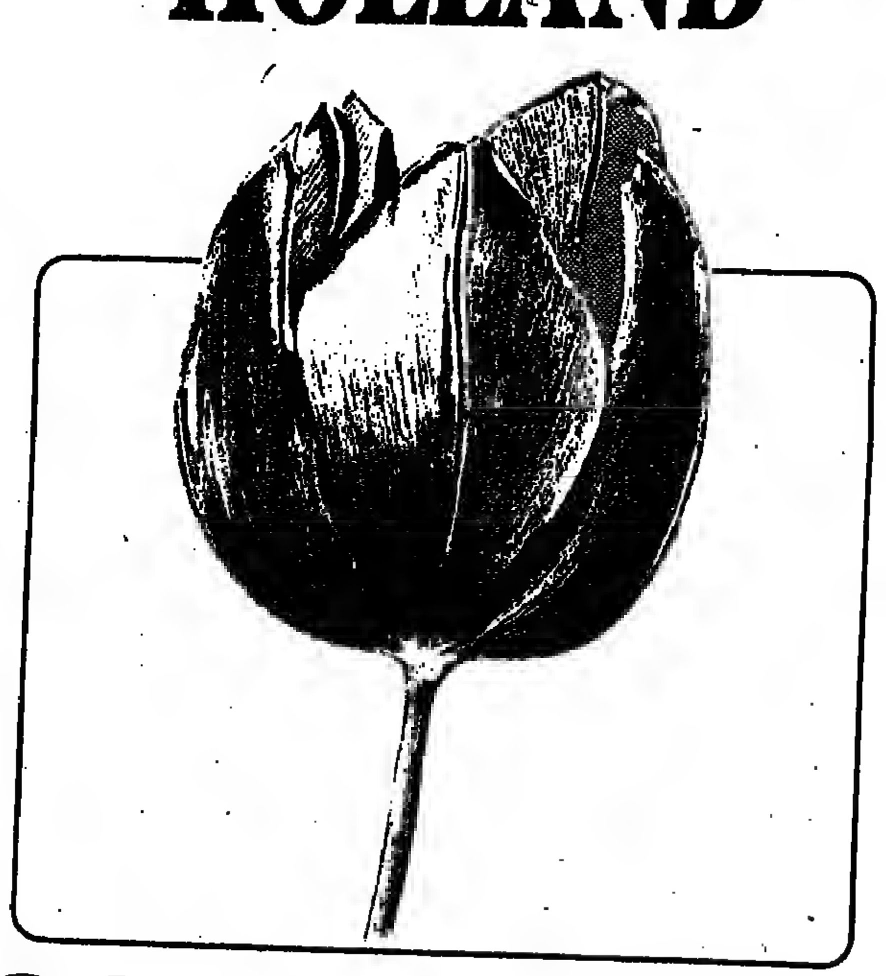
ata COMPUTER RECRUITMENT

(8645)

HOLLAND



IBM ANALYST-PROGRAMMERS AND PROGRAMMERS

ADVANCED IBM INSTALLATION
The organisation utilises large IBM hardware and an on-line database system is operational. In addition, a network with distributed databases at its offices in North and South America and Europe is being set up. COBOL is the main programming language.

WORKING ENVIRONMENT
The development team comprises a number of experienced analyst programmers who work individually on projects or combine into small project teams as the need arises. A high proportion of the staff is British and English is the working language of the installation.

EXPERIENCE REQUIRED
For the analyst programmer vacancies, highly experienced candidates with at least five years' varied commercial work utilising COBOL on large IBM hardware are needed. Some database and TP experience is desirable. For the programmer vacancies, three years' experience of COBOL on large IBM hardware and software with exposure to DB and TP are desirable. For both positions training will be given to fill any technical gaps.

SALARY & BENEFITS
There is considerable flexibility in what can be offered and in addition to the basic salary, a vacation allowance, annual bonus and tax-free travel allowance are paid. The total package will range from perhaps £11,000 at the more junior level to £17,000 for a suitable senior person and will ensure a substantially higher standard of living for selected candidates. Medical insurance is paid by the Company.

RELOCATION
A generous relocation package is offered to help candidates and their families settle in satisfactorily.

LIVING IN HOLLAND
Many British computer staff work in Holland and it is in many ways the "softest landing" for those who wish to move to continental Europe. The client is located in a small town near the coast and accommodation in the area is not difficult to find and the cost of living in general is now lower than in the UK, due to Holland's lower rate of inflation.

LANGUAGE
English, as well as being the working language of the installation, is generally spoken throughout Holland, which considerably eases settling in problems.

INTERVIEWS
Initial interviews with the client's representatives will be held at our offices in Nantwich on 4th March and in London on 5th March.

For an initial discussion, ring me, Nevill John, on (0270) 627206 Office Hours or on (2070) 213118 Other Times, or write to me at the address opposite, quoting Ref 207/CW.

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Hardware? DEC, Hewlett Packard, Ferranti, Data General, Prime, Intel, Zilog, Motorola, Tandem, etc., together with relevant operating systems (incidentally, we'll roll out the red carpet if you've got UNIX experience).

Opportunities from Programmer/Software Engineer to Consultants/Managers. We also have plaintive pleas for Hardware Engineers with experience of digital design, about three to five years would be just right.

Clients seeking the aforementioned are users, manufacturers, and software houses, in London, the Home Counties and further. Some offering U.K. and overseas travel, some offering cars and other attractive benefits – AND – if you have good experience of digital exchange systems and speak German, Switzerland is waiting for you.

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Candidates should have sound experience of working on these systems and their software in a data communications environment, with good knowledge of on-line terminal networks. Fully-trained, you must be capable of working alone once initial familiarisation is complete.

Bermuda is a semi-tropical island 600 miles east of North America, in the Gulf Stream ensuring a temperate climate with summer temperatures from May to November. The environment offers an attractive way of life with many leisure and sporting activities readily available. A single person is preferred, a married person without children would be considered, and the appointment is subject to the issue of an annual work permit.

Airfares and a relocation expense allowance will be paid, and in addition the company provide the attractive range of benefits one would expect from a well-established organisation. These include generous holidays, free life assurance, sick pay, pension scheme and insurances (some of which are free).

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Our staff live in Manhattan (Big Apple) or slower paced New Jersey. We'll help you choose which location is best for you.

All positions require degree and at least three years' experience, in the following areas – IBM, COBOL, ASSEMBLER, PL1, IMS, CICS, also opportunities for those with ICL and Mini experience.

Benefits include relocation to the U.S., full medical coverage, paid overtime and annual round trip airfare to U.K.

People with marginally less experience may be granted the opportunity of additional training in the UK prior to being moved over to the States office.

Representatives from our New York and Dallas Offices will be over commencing 8th March, 1982, to discuss your career prospects.

telephone **SUE ASHBY**
(daytime) **01-836 6775**
(evenings) **0844-53531**

Computer Personnel International
THE SPECIALIST RECRUITMENT SERVICE DIVISION OF COMPUTER SYSTEMS INTERNATIONAL
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Commercial Systems Analyst/Programmer

Progressive Environment
West Country **£8/9,000**

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The successful applicant will have general systems experience and knowledge of COBOL, and will be prepared to undertake responsibility for all aspects of a project.

Age and specific machine experience are less important than ability and commitment. An attractive salary is offered, together with relocation assistance where necessary, and other benefits.

Please write, giving brief details of experience and qualifications to:

The Company Secretary
Independent Chemists Marketing Ltd
51 Boreham Road
Warminster
Wilts BA12 9JU
Tel: 0985 215555

NUMARK CHEMIST
(8657)

Guy's Hospital Medical School

GRADUATE RESEARCH ASSISTANT

with experience in computer programming, required as soon as possible for two years in Anatomy Department, to develop programs for the image analysis of radiographs and to help in the analysis. Post would suit graduate in computer science with an interest in medicine or biology. Salary £5,262–£5,676, plus £1,035 London Allowance. Apply in writing, with curriculum vitae, to the Secretary, Guy's Hospital Medical School, London Bridge, SE1 9RT, quoting Ref. A.N.2.
(8658)

UNIVERSITY OF BIRMINGHAM
DEPARTMENT OF PHYSICS

Hardware Engineer

Applications are invited for the post of Hardware Engineer (male/female) in the Elementary Particle Physics research group. The successful applicant will be required to design and commission electronic equipment including microprocessors. A degree or equivalent in an appropriate subject with a substantial electronics content is required. Some experience in an electronics service and development environment is desirable. The post is funded on Scale IB (£5285-£5925) by a rolling grant from SERC. The appointment will be for two years initially. Applications should be made to the Senior Assistant Secretary, University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom application forms and further particulars are available, to reach him by Friday, 19th March, 1982.
(8653)

BOX NUMBERS

Box number replies should be addressed to:

Box Number ....

c/o Computer Weekly
Quadrant House
The Quadrant
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Applicants should have experience of interactive computer systems, preferably based on Prime or VAX. Ability to communicate with non-computing professionals and a willingness to travel frequently in the UK and sometimes abroad is essential. Salary negotiable but will primarily be based on age and experience.

To apply, please send a copy of your curriculum vitae, quoting ref: IE/A.

This position is open to both men and women.

Cambridge Recruitment Consultants
1a Rose Crescent, Cambridge CB2 3LL. Telephone: 0223 311316.
(8660)

THE UNIVERSITY OF ASTON IN BIRMINGHAM
DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

Research Assistant

Digital Image Processing

Applications are invited for the above post to work on a three-year SERC sponsored programme of research in digital image processing.

Applicants should preferably be qualified to honours degree level in electronic engineering, computer science or a related discipline. Experience of real-time software development and/or digital signal processing, while not essential, would be an advantage.

Commencing salary will be within the range £6,285-£6,070 per annum, rising by annual increments to £7,700 per annum.

Application forms and further particulars may be obtained from the Staff Officer (quoting Ref: 500/102), University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET. Tel: 021-359 3611 Ext 201.

Closing date for the receipt of applications is 19th March, 1982
(8643)

UK SERVICE ENGINEERING MANAGER

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(8665)

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- **Project Leaders**
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To obtain the **VSS** information kit and application forms telephone **Mr. D. M. Smith** on 01-240 2881 Ext. 34.
(8602)

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E	■	T	■	B	■	L	■	E	■	R	■	E	■	E
R	E	H	O	U	S	E	■	E	N	L	I	S	T	S

LECTURER in computer science James Inglis, of Birkbeck College, University of London wins £10 in our February competition. A prize of £5 goes to John Dawes, a project manager with ICL at Reading, and P. W. Thompson of Billingham.

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(University of London)

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Salary in the range £6,320 to £7,510 depending on experience and qualifications.

Apply in writing to the Assistant Secretary giving full career details and the names and addresses of two referees.

(6639)

OXFORD POLYTECHNIC

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Applications are invited for the post of Computer Operator. The successful applicant will become a member of a team of operators responsible for the Centre's computers. Equipment installed includes three Prime processors, running under PRIME and PRINET, supporting 109 terminals and a variety of micro computer systems.

Applicants should have a good educational background, and will probably have an appropriate post 'A' qualification. Trainee applicants who have a basic knowledge of computing will be considered.

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Application forms and further details from the Deputy Administrator, Oxford Polytechnic, Headington, Oxford OX3 0BP.

(6610)

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ComputerWeekly

March 4th, 1982

MIDLANDS RECRUITMENT FEATURE

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SALES BIT

How to become a head-hunter–2

Recruiters who exploit human weaknesses

LAST week I wrote about my reactions to the role of the "head-hunter" – the type of recruiter who makes his living by approaching individuals directly in accordance with a character/experience/company profile rather than advertising or resorting to a normal agency operation.

Ironically, this method of recruitment is often more financially rewarding and easier than the more socially acceptable advertising and/or agency-based operation.

I also believe it to be corrupt and demeaning because it exploits the weakness of human nature.

Who can resist the ego boost of a letter or telephone call which suggests you have been "identified" as an (or even *the*) individual with the special talents for an important challenging and highly rewarded job? It confirms a tenuous personal belief (or is it hope?) that one has great potential yet to be unleashed and now someone has had the wit to discover and acknowledge it!

It is a glimpse of the greener fields and jam tomorrow and only a fool, it appears, would say "No thank you, I'm not interested."

The more senior the "target" recruit, the easier the task of identification. It's a function of the logistics of the company pyramid – the higher you go, the fewer of a given job function there are around.

Identifying lesser victims such as salesmen is more time-consuming for the head-hunter, because individual names do not immediately spring to mind, and discovering them is relatively laborious, but a task that creates few intellectual demands.

There are two basic strategies: The "roll-over" recruiter simply interrogates his candidate files in the context of the appropriate geographic location, product knowledge, applications experience, etc, makes a list of names and telephone numbers, then it's into the "Hello Fred, a really special job opportunity has just cropped up that I simply had to call you about."

The head-hunter with no permanent personnel files or the "roll-over" recruiter with no appropriate candidates has a bigger problem, but not an insurmountable one. He simply identifies his client's principal competitors, contacts the appropriate branch office and chats up the telephone operator.

"Who's your salesman for North London?" or "I'm trying to re-establish contact with one of your salesmen, but I've forgotten his name" and other colloquial gems usually generate a crop of names.

Then it's simply a matter of "Good morning Mr Salesman, you have been identified by a substantial and progressive organisation as a strong contender for an excellent career opportunity that has just arisen in your area."

Unfortunately, the computer industry has been dramatically short of accomplished salespeople from its very beginning and the situation is no better today – probably worse. This imbalance of demand over supply is the ideal scenario for the head-hunter and clearly attracts the kind of person who enjoys this sort of challenge.

It's a process that I find unacceptable, except, perhaps, in very special circumstances that may exist at high executive level, ie people who ought to have sufficient experience to handle a direct approach. At the territory sales level I consider it unprofessional practice that should be treated by individuals with the contempt it deserves.

Having said all that, just consider the implications of direct approach recruitment from the employer's point of view purely in terms of its basic benefits and disadvantages. In its favour it has the apparent benefits of avoiding the vagaries of Press advertising and is directed at individuals with directly relevant experience to the job vacancy.

The corresponding disadvantage is that the scope of search is limited to the head-hunter's sphere of industry knowledge and individual contact, which is unlikely to be absolute.

Secondly, a job which is not advertised automatically excludes candidates outside the head-hunter's influence and, more importantly, those up-and-coming people who are not currently in the given job function, but have the qualifications to carry out the job, and see it as a bigger opportunity and challenge than someone already operating in the same capacity.

Another problem can be credibility. Do you really want to work for a company that is prepared to rip you out of your current employment in order to secure an easy route to solving what is usually a self-inflicted management problem?

There is already too much voluntary traffic in personnel within the computer industry (although the recession has quietened things down a lot) without stimulating additional movement to meet the short-term objectives of employers and head-hunters.

I cannot see any benefit in the long term to any party in the head-hunting syndrome other than the head-hunter himself.

So I hope you will perceive a considerable difference between a head-hunter and a recruitment consultant and understand why the latter may react negatively to being given the wrong label.

I also hope you now have a better appreciation of the head-hunter's methods and motivation and will have the strength to say "not today, thank you" the next time he calls – even if you secretly hope he will!

Alan Williams

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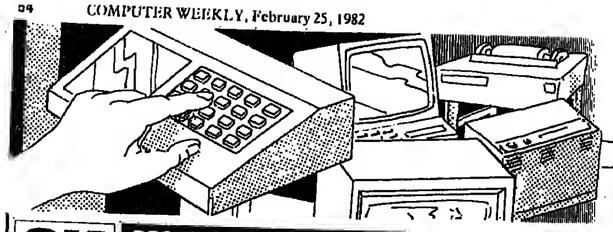

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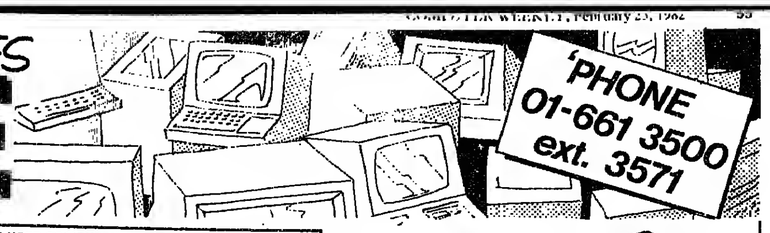

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